02-8412-15-SI
REV. 3

FINAL
SITE INSPECTION REPORT
AND HAZARD RANKING SYSTEM MODEL
TENNECO POLYMERS INC.
BURLINGTON TOWNSHIP, NEW JERSEY

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO.
02-8412-15
CONTRACT NO. 68-01-6699

REVISED UNDER TECHNICAL DIRECTIVE DOCUMENT NO.
02-8706-19
CONTRACT NO. 68-01-7346

FOR THE

ENVIRONMENTAL SERVICES DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

APRIL 30, 1985
REV. 1: JUNE 30, 1987
REV. 2: SEPTEMBER 23, 1987
REV. 3: OCTOBER 27, 1987

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY

Joann L. Wagner
JOANN L. WAGNER
PROJECT MANAGER

REVIEWED/APPROVED BY

STUART FERGUSON
FIT OFFICE MANAGER

277582

REVISED STATUS

This SI Report was issued April 30, 1985, with revisions issued on June 30, 1987, September 23, 1987, and October 27, 1987.

NUS CORPORATION
A Halliburton Company

Revision 3

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT EXECUTIVE SUMMARY

Tenneco Polymers, Inc.	NJD001890185
Site Name	**EPA Site ID Number**
Beverly Road, P.O. Box 116 Burlington Twp., NJ 08016	02-8706-19
Address	**TDD Number**

Date of Site Visit: 01/07/85; 01/17/85

SITE DESCRIPTION

Tenneco Polymers, Inc., now owned by Occidental Chemical Corporation, is located on approximately 50 acres of property along the Delaware River in Burlington Township, New Jersey. Tenneco Polymers has been in operation at this location since 1965, manufacturing polyvinyl chloride (PVC) for various industrial applications. Sludge from the facility's wastewater treatment plant was placed in unlined dewatering lagoons prior to disposal in an on-site landfill. PVC reactor wastes were also placed in the landfill. The lagoons and the landfill were not lined, and were scheduled for closure in March 1985. On-site monitoring wells were installed as a requirement of the facility's New Jersey Pollutant Discharge Elimination System permit for the sludge lagoons; there are also several production wells on the property.

Several densely populated urban areas are located within a 3-mile radius of the site, as are scattered rural and suburban areas. Residents in the vicinity are dependent upon both groundwater and surface water as their source of potable water. Municipalities served by public supply wells located within a 3-mile radius and drawing from the aquifer of concern include Burlington and Willingboro Townships in New Jersey. Surface water intakes within 3 miles of the site supplement the well supplies of Bristol Borough, Pennsylvania, and are the primary source of public supply for the city of Burlington, New Jersey. These upstream surface intakes are considered as potential targets because of the tidal influences in the Delaware River.

(Attachment)

HAZARD RANKING SCORE: S_M=41.32 (S_{gw}=63.55, S_{sw}=32.73, S_a=0)
S_{FE}= Not scored
S_{DC}= 50.00

Prepared by: Joann L. Wagner **Date:** 09/23/87
of NUS Corporation

Facility name: Tenneco Polymers, Inc.

Location: Burlington Township, New Jersey

EPA Region: 2

Persons(s) in charge of the facility: Ronald Neugold - Plant Manager

Fred Kanzler - Site Environmental Coordinator

Name of Reviewer: Joann L. Wagner **Date:** October 23, 1987
General description of the facility:
(For example: landfill surface impoundment pile, container; types of hazardous substances; location of the facility; contamination route of major concern; type of information needed for rating; agency action, etc.)

Tenneco Polymers, Inc. manufactured polyvinyl chloride (PVC) for various industrial uses. Sludge from the facility's wastewater treatment plant was placed in dewatering lagoons prior to disposal in an on-site landfill. PVC reactor wastes were also disposed of in the landfill. Neither the landfill nor the lagoons were lined. The contamination routes of major concern include the groundwater and surface water routes, as public supply wells and surface water intakes provide potable water to the majority of the population within a 3-mile radius of the site.

Score: S_M = 41.32 (S_{gw} = 63.55 S_{sw} = 32.73 S_a = 0)

S_{FE} = Not scored.

S_{DC} = 50.00

HRS COVER SHEET

Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	0	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2	6	6	
Net Precipitation	0 1 2 3	1	2	3	
Permeability of the Unsaturated Zone	0 1 2 3	1	1	3	
Physical State	0 1 2 3	1	3	3	
	Total Route Characteristics Score		12	15	
3 Containment	0 1 2 3	1	3	3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	15	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	8	8	
	Total Waste Characteristics Score		23	26	
5 Targets					3.5
Ground Water Use	0 1 2 3	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	35	40	
	Total Targets Score		44	49	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			36432	57,330	
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 63.55		

Surface Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1	0	3	
1-yr. 24-hr. Rainfall	0 1 2 3	1	2	3	
Distance to Nearest Surface Water	0 1 2 3	2	4	6	
Physical State	0 1 2 3	1	3	3	
	Total Route Characteristics Score		9	15	
3 Containment	0 1 2 3	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 18	1	12	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	8	8	
	Total Waste Characteristics Score		20	26	
5 Targets					4.5
Surface Water Use	0 1 2 3	3	9	9	
Distance to a Sensitive Environment	0 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	30	40	
	Total Targets Score		39	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			21060	64,350	
7 Divide line 6 by 64,350 and multiply by 100	S_{sw} = 32.73				

Air Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line 1 is 0, the S_a = 0. Enter on line 5 If line 1 is 45, then proceed to line 2					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
4 Multiply 1 x 2 x 3				35,100	
5 Divide line 4 by 35,100 and multiply by 100		S_a = 0			

	s	s^2
Groundwater Route Score (S_{gw})	63.55	4038.60
Surface Water Route Score (S_{sw})	32.73	1071.25
Air Route Score (S_a)	0	0
$S^2_{gw} + S^2_{sw} + S^2_a$		5109.85
$\sqrt{S^2_{gw} + S^2_{sw} + S^2_a}$		71.48
$\sqrt{S^2_{gw} + S^2_{sw} + S^2_a}\,/\,1.73 = S_M =$		41.32

WORKSHEET FOR COMPUTING S_M

Fire and Explosion Work Sheet					
Rating Factor	**Assigned Value (Circle One)**	**Multi-plier**	**Score**	**Max. Score**	**Ref. (Section)**
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
	Total Targets Score			24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} = Not scored			

Direct Contact Work Sheet					
Rating Factor	**Assigned Value (Circle One)**	**Multi-plier**	**Score**	**Max. Score**	**Ref. (Section)**
[1] Observed Incident	0 45	1	0	45	8.1
If line [1] is 45, proceed to line [4] If line [1] is 0, proceed to line [2]					
[2] Accessibility	0 1 2 3	1	3	3	8.2
[3] Containment	0 15	1	15	15	8.3
[4] Waste Characteristics Toxicity	0 1 2 3	5	15	15	8.4
[5] Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4	16	20	
Distance to a Critical Habitat	0 1 2 3	4	0	12	
Total Targets Score			16	32	
[6] If line [1] is 45, multiply [1] x [4] x [5] If line [1] is 0, multiply [2] x [3] x [4] x [5]			10800	21,600	
[7] Divide line [6] by 21,600 and multiply by 100			S_{DC} = 50.00		

<u>Contents</u>

SECTION 1

SITE INSPECTION REPORT EXECUTIVE SUMMARY

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
EXECUTIVE SUMMARY

(ATTACHMENT)

NUS Corporation Region 2 FIT conducted a site inspection of the facility on January 17, 1985, during which samples were collected from the landfill, a sludge lagoon, and four of the monitoring wells. Trichloroethene was detected in one of the soil samples from the landfill and in a groundwater sample. Vinyl chloride and methylene chloride were detected in the aqueous sample collected from the sludge lagoon; methylene chloride and trans-1,2-dichloroethene were found in several of the groundwater samples. Elevated levels of numerous heavy metals were detected in all of the groundwater samples, but were noticeably absent from the soil and sludge lagoon samples. The inorganic contaminants were not used in scoring the site, as their presence in the groundwater is not readily attributable to on-site processes.

SECTION 2

ENVIRONMENTAL PROTECTION AGENCY FORM 2070-13

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NJ	D001890185

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	Tenneco Polymers, Inc.
02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER	Beverly Road, P.O. Box 116
03 CITY	Burlington Township
04 STATE	NJ
05 ZIP CODE	08016
06 COUNTY	Burlington
07 COUNTY CODE	005
08 CONG DIST	NJ-04
09 COORDINATES LATITUDE	40° 04' 11". N
LONGITUDE	0 74° 52' 52". W

10 TYPE OF OWNERSHIP (Check one)
X A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION (MONTH DAY YEAR)	02 SITE STATUS	03 YEARS OF OPERATION
1 17 85	X ACTIVE ☐ INACTIVE	1965 (BEGINNING YEAR) / Active (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA X B. EPA CONTRACTOR NUS Corporation (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ______ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR ______ (Name of firm) ☐ G. OTHER ______ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Joseph W. Logan	Chemical Engineer	NUS Corp., FIT 2	(201)225-6160

09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Diane W. Trube	Geologist	NUS Corp., FIT 2	(201)225-6160
Gary Rojek	Environmental Scientist	NUS Corp., FIT 2	(201)225-6160
Deborah LaMond	Environmental Scientist	NUS Corp., FIT 2	(201)225-6160
Glenn Beyerman	Environmental Scientist	NUS Corp., FIT 2	(201)225-6160
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Fred Kanzler	Site Environmental Coordinator	Tenneco Polymer Burlington, New Jersey 08016	(609) 386-9200
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
X PERMISSION ☐ WARRANT	1000 hours	25 - 30°F, 3 inches of snow on ground

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Diana Messina	U.S. EPA, Edison, New Jersey	(201)321-6776

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE (MONTH DAY YEAR)
Joann L. Wagner	U.S.EPA	NUS Corp., FIT 2	(201) 225-6160	6 29 87

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D001890185

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- X A. SOLID
- B. POWDER, FINES
- X C. SLUDGE
- D. OTHER ______ (Specify)
- E. SLURRY
- X F. LIQUID
- G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

- TONS ______
- CUBIC YARDS 133,000
- NO. OF DRUMS ______

03 WASTE CHARACTERISTICS (Check all that apply)

- X A. TOXIC
- B. CORROSIVE
- C. RADIOACTIVE
- X D. PERSISTENT
- E. SOLUBLE
- F. INFECTIOUS
- X G. FLAMMABLE
- H. IGNITABLE
- I. HIGHLY VOLATILE
- J. EXPLOSIVE
- K. REACTIVE
- L. INCOMPATIBLE
- M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	133,000	Cubic Yards	Total volume of wastewater
OLW	OILY WASTE			treatment sludge and reactor
SOL	SOLVENTS			waste material deposited in
PSD	PESTICIDES			landfill. Of total, wastewater
OCC	OTHER ORGANIC CHEMICALS			treatment sludge is 123,000
IOC	INORGANIC CHEMICALS			cubic yards. All material is
ACD	ACIDS			considered to be non-hazardous
BAS	BASES			by the owner at time of disposal.
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	Vinyl Chloride	75-01-4	Unknown	450	ug/l
SOL	Methylene Chloride	124-48-1	Unknown	330	ug/l
SOL	Trans-1,2,-Dichloroethene	75-25-2	Unknown	15	ug/l
SOL	Trichloroethene	79-01-6	Unknown	48	ug/kg
MES	Aluminum	7429-90-5	Unknown	133,000	ug/l
MES	Antimony	7440-36-0	Unknown	159	ug/l
MES	Barium	7440-39-3	Unknown	655	ug/l
MES	Cadmium	7440-43-9	Unknown	38	ug/l
MES	Chromium	7440-47-3	Unknown	480	ug/l
MES	Cobalt	7440-48-4	Unknown	1800	ug/l
MES	Lead	7439-92-1	Unknown	280	ug/l
MES	Mercury	7439-97-6	Unknown	0.27	ug/l
MES	Nickel	7440-02-0	Unknown	619	ug/l
MES	Silver	7440-22-4	Unknown	46	ug/l
MES	Vanadium	7440-62-2	Unknown	918	ug/l
MES	Zinc	7440-66-6	Unknown	859	ug/l

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Vinyl Chloride	75-01-4	FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

New Jersey Department of Environmental Protection (NJDEP) background files.
U.S. EPA Contract Laboratory Program, Sample Management Office. Analytical results of samples collected by NUS Corporation Region 2 FIT on 1/17/85.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

EPA

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D001890185

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED 24,000
02 X OBSERVED (DATE 1/17/85) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Several volatile organics and numerous heavy metals were detected in samples collected from on-site monitoring wells on 1/17/85 by NUS Corporation, Region 2 FIT personnel.

01 X B SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED 36,900
02 ☐ OBSERVED (DATE ______) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The potential exists for contaminants to enter the Delaware River via run-off to Marter's Ditch. There are two surface water intakes located in the Delaware River approximately 1.5 and 2.2 miles upstream from the the site. These intakes serve the city of Burlington, NJ. and Bristol Borough, PA, respectively.

(See Attachment)

01 X C CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED Unknown
02 ☐ OBSERVED (DATE ______) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

A slight potential for air contamination exists, as readings of 5-6 ppm were detected on the OVA in the immediate vicinity of the landfill and lagoon during the site reconnaissance. The OVA also detected 1-2 ppm above background in the breathing zone immediately adjacent to the landfill. However, no readings above background were recorded in the ambient air off site. The company has numerous permits for its various plant operations.

01 X D FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED 29,000
02 ☐ OBSERVED (DATE ______) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The potential exists for fire/explosive conditions, as vinyl chloride is a highly flammable substance. However, the local fire chief has stated that he does not consider the facility to pose such a threat because of the company's strict safety policies and reputation for cooperation with the fire department.

01 X E DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED 5,240
02 ☐ OBSERVED (DATE ______) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The landfill is not completely fenced, but is regularly patrolled by plant security. There are no physical barriers preventing access to the sludge lagoons.

01 X F CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED Unknown (Acres)
02 ☐ OBSERVED (DATE ______) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The presence of volatile organics and heavy metals in groundwater samples indicates the potential for widespread subsurface soil contamination.

01 ☐ G DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED 24,000
02 ☐ OBSERVED (DATE ______) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The potential for drinking water contamination exists due to the presence volatile organics and heavy metals in the groundwater. The populations of several surrounding municipalities are dependent upon private or public supply wells for their drinking water supplies.

01 X H WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED Unknown
02 ☐ OBSERVED (DATE ______) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Worker exposure may result from direct contact with wastes, from drinking water contamination, or as a result of a fire or explosion on site. Although the wastes deposited in the sludge lagoons and landfill are classified as non-hazardous, several volatile organic contaminants were detected in samples collected from these areas.

01 X I POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED 50,400
02 ☐ OBSERVED (DATE ______) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Population exposure/injury is most likely to occur via drinking water contamination, but may also result from direct contact or fire/explosive conditions.

ATTACHMENT

II. HAZARDOUS CONDITIONS AND INCIDENTS (Cont'd)

Upstream surface intakes are considered vulnerable to contamination because the Delaware River is tidal in this area. There are no surface water intakes within 3 miles downstream from the site. The river is also used for non-contact recreational boating in the vicinity.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: NJ | 02 SITE NUMBER: D001890185

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 X J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE ________) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

A slight potential exists for damage to flora growing on the landfill and in the surface run-off pathways from the landfill to Marter's Ditch, as trichloroethene was detected in a soil sample collected from the landfill.

01 X K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE ________) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

A slight potential exists for damage to fauna feeding on contaminated flora or drinking from Marter's Ditch.

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No potential exists, as volatile organic contaminants found in surficial samples from the site are not bioaccumulative.

01 X M. UNSTABLE CONTAINMENT OF WASTES — 02 X OBSERVED (DATE June 1981) X POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 5,240
04 NARRATIVE DESCRIPTION

The landfill and sludge dewatering lagoons are not lined.

01 X N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE ________) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The potential exists for contamination of drinking water supplies.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE ________) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

No potential exists, as wastewaters are discharged to local surface waters. There are no storm drains downgradient from the site.

01 X P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE ________) X POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The potential exists, as the rear of the property is not completely enclosed. However, regular security patrols would discourage this activity.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

Polyvinyl chloride (PVC) sludge drag-out wastes, i.e. vinyl resin reactor cleanings and vinyl plastisol reactor cleanings, were landfilled on site in addition to the wastewater treatment plant sludge.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 36,900

IV. COMMENTS

There was much discrepancy within the NJDEP Bureau of Hazardous Waste as to whether or not the PVC sludge drag out material was hazardous material. In a letter to Tenneco Polymers in February 1982, the DEP stated that it did not consider the wastes to be hazardous, and were classified as non-hazardous industrial wastes. (see Attachment)

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS Corporation Region 2 FIT site reconnaissance and inspection, 1/7/85 and 1/17/85, respectively.
U.S. EPA Contract Laboratory Program, Sample Management Office. Analytical results of samples collected on 1/17/85.
NJDEP background files. USGS Topograhic map, 7.5 minute series, Beverly, NJ Quadrangle. (See Attachment)

ATTACHMENT

IV. COMMENTS

As a result of this ruling, the Company's landfill application was transferred from the Bureau of Hazardous Waste to the Bureau of Engineering and Registration. A memo from the letter dated March 1982 indicated that they would be examining the issue further. There was no indication in the background file that there had been a reversal of the decision of the non-hazardous materials ruling.

V. SOURCES OF INFORMATION

State of New Jersey, Department of Environmental Protection. Water Supply Overlay, Sheet Number 27, August 1975.

Commonwealth of Pennsylvania, Department of Environmental Resources. Sanitary Survey Forms for Evaluating Public Water Supplies: Bristol Borough Water and Sewer Authority.

Telecon note, 6/25/87: Conversation between John Rattie of the Delaware River Basin Commission, Trenton Office, and Joann Wagner of NUS Corporation.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D001890185

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				* DSW 12/1/84; DGW permit in process
☐ B. UIC				
X C. AIR				See Attachment #1
X D. RCRA	0306D			Generator only; materials stored
☐ E. RCRA INTERIM STATUS				for less than 90 days; no treat-
☐ F. SPCC PLAN				ment or disposal; delisted as
X G. STATE (Specify) (NJPDES)	*NJ0004391			a TSD facility as of May 1986.
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
X A. SURFACE IMPOUNDMENT	Unknown	Cubic yards
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
X F. LANDFILL	133,000	Cubic yards
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- X C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- X G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER (Specify)

05 OTHER

- ☐ A. BUILDINGS ON SITE

06 AREA OF SITE

50 (Acres)

07 COMMENTS

Wastewater treatment plant sludges were placed into three sludge dewatering lagoons prior to disposal in the on-site landfill, along with PVC sludge drag-out wastes. The quantity of wastes disposed in the landfill as indicated above is the amount estimated to have been disposed between 1962 and 1985 inclusive. A quantity of 11,600 cubic yards of wastes were reported to have been disposed in the landfill from 1983 to 1984.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE X C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Wastewater treatment plant sludge and other non-hazardous plant wastes are mixed with soil and landfilled. There is no liner at the base of the landfill or in the sludge dewatering lagoons.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES X NO

02 COMMENTS

The site is partially fenced and surrounded by undeveloped land. The site is accessible at remote unfenced areas around the perimeter. Neither the lagoons nor the landfill are surrounded by barriers, although the landfill is patrolled by plant security.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

NJDEP background files.

NUS Corporation Region 2 FIT site reconnaissance and inspection, 01/07/85 and 01/17/85, respectively.

Letter from Fred Kanzler of Tenneco Polymers, Inc. to Joseph Logan of NUS Corporation, dated January 31, 1985.

ATTACHMENT #1
TENNECO POLYMERS, INC., BURLINGTON TOWNSHIP

LIST OF AIR PERMITS

Permit #	Date Issued	Expiration Date
676	05/30/81	05/30/86
018037	10/01/80	10/01/85
007185	01/23/83	01/23/88
016594	11/19/80	11/19/85
006896 through 006915	11/09/82	11/09/87
006893	11/09/82	11/09/87
006894	11/09/82	11/09/87
006895	11/09/82	11/09/87
006916	11/09/82	11/09/87
006917	11/09/82	11/09/87
006918	11/09/82	11/09/87
009937	05/08/84	05/08/89
008422	05/08/84	05/08/89
008423	05/08/84	05/08/89
008424	05/08/84	05/08/89
000677	05/30/81	05/30/86
000678	05/30/81	05/30/86
016596	11/19/80	11/19/85
016597	11/19/80	11/19/85
016598	11/19/80	11/19/85
016593	11/19/80	11/19/85
008989	05/08/80	05/08/85
012386	02/19/84	02/19/89

ATTACHMENT #1 (CONT'D)

TENNECO POLYMERS, INC., BURLINGTON TOWNSHIP

LIST OF AIR PERMITS

Permit #	Date Issued	Expiration Date
047356	10/12/81	10/12/86
047357	12/20/80	12/20/85
007186	01/23/83	01/23/88
037470	07/05/84	07/05/89
037473	07/05/84	07/05/89
016327	10/01/80	10/01/85
016328	10/01/80	10/01/85
016324	10/01/80	10/01/85
016325	10/01/80	10/01/85
016326	12/17/82	12/17/87
068626	06/13/84	06/13/89
068627	06/13/84	06/13/89
068628	06/13/84	06/13/89
038274	12/03/84	12/03/89
008093	05/08/84	05/08/89
008312	06/13/83	06/13/88
008092	05/08/84	05/08/89
008449	06/13/83	06/13/88
015919	10/01/80	10/01/85
015920	10/01/80	10/01/85
008421	05/08/84	05/08/89
016322	10/01/80	10/01/85
016323	10/01/80	10/01/85
062407	12/09/84	03/09/85 (90-day)
062408	12/09/84	03/09/85 (90-day)
062409	12/09/84	03/09/85 (90-day)
067073	10/19/84	01/19/85 (90-day)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION
01 STATE: NJ — 02 SITE NUMBER: D001890185

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A X	B X
NON-COMMUNITY	C ☐	D X

02 STATUS

	ENDANGERED	AFFECTED	MONITORED
COMMUNITY	A ☐	B ☐	C ☐
NON-COMMUNITY	D ☐	E ☐	F ☐

03 DISTANCE TO SITE
Well: 0.4 miles
Surface: 1.5 (upstream)
A ______ (mi)
B 0.8 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING
X B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)
☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available)
☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER: 24,000

03 DISTANCE TO NEAREST DRINKING WATER WELL: 0.4 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
13 (ft)	Northwest	17 (ft)	140×10^6 (gpd)	☐ YES X NO

09 DESCRIPTION OF WELLS (including usage, depth, and location relative to population and buildings)

The majority of the wells in the vicinity of the site and to the north are located in the middle aquifer of the Potomac-Raritan-Magothey aquifer system. Public supply wells within a 3-mile radius provide service to the municipalities of Burlington and Willingboro Townships, New Jersey.
(See Attachment)

10 RECHARGE AREA
X YES ☐ NO
COMMENTS: Recharge occurs via precipitation and induced artificial recharge from the Delaware River.

11 DISCHARGE AREA
☐ YES ☐ NO
COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

X A. RESERVOIR, RECREATION, DRINKING WATER SOURCE
☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES
☐ C. COMMERCIAL, INDUSTRIAL
☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME	AFFECTED	DISTANCE TO SITE
Delaware River	☐	adjacent (mi)
Marter's Ditch	☐	0.1 (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 5,240 NO. OF PERSONS	B. 29,000 NO. OF PERSONS	C. 75,000 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 0.19 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE: 9,400

04 DISTANCE TO NEAREST OFF-SITE BUILDING: 0.19 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The area within 2 miles of the site is fairly urbanized. This includes the City of Burlington, Burlington Township, and parts of Willingboro and Edgewater Park. There are some tracts of undeveloped land which are forested or farmed. Beyond 2 miles, the area is rural with small towns. To the north across the Delaware River are urbanized areas around Bristol, Pennsylvania.

ATTACHMENT

III. GROUNDWATER (Cont'd)

09 DESCRIPTION OF WELLS

The depths of the wells currently in use range from 165 feet to 255 feet in accordance with the depth and the dip of the formation. There are 11 shallow (approx. 30 feet deep) monitoring wells on the Tenneco property, plus several deeper (more than 100 feet) production wells used for industrial and drinking purposes.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D001890185

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A $10^{-6} - 10^{-8}$ cm/sec ☐ B $10^{-4} - 10^{-6}$ cm/sec ☒ C $10^{-4} - 10^{-3}$ cm/sec ☐ D GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☒ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
140 (ft)	6 (ft)	4.5 - 5.0

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
10 (in)	2.5 - 3.0 (in)	< 3 %	NNW	< 3 %

09 FLOOD POTENTIAL

SITE IS IN 100 YEAR FLOODPLAIN

10 ☒ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE A. > 2 (mi) OTHER B. > 1 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

> 1 (mi)

ENDANGERED SPECIES: Not applicable

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 0.47 (mi)	residential areas - 0.19 B. others - > 2 (mi)	C. >2 (mi)	D. >1 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The plant occupies property that extends from Beverly Road north to the Delaware River. A railroad bisects the property from west to east. The landfill and wastewater treatment plant are on the north side of the railroad, while the storm water lagoon and the main plant operations are on the south side. A utility company right-of-way borders the east side; undeveloped land owned by Tenneco occupies the majority of the western portion of the property. A small portion of the property along the Delaware River and some drainage pathways lie within a 100-year floodplain, while other areas, such as the landfill and plant operations areas, are above the 500-year floodplain. The entire property is located at less than 20 feet above sea level.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS Corporation Region 2 FIT site reconnaissance and inspection, 1/7/85 and 1/17/85, respectively.
State of New Jersey, Department of Conservation and Economic Development, Division of Water Policy and Supply, 1968. Special Report No. 26: Geology and Groundwater Resources of Burlington County, NJ. 65 pp.
United States Department of Agriculture, Soil Conservation Service. October 1971. Soil Survey of Burlington County, NJ. 120 pp.

ATTACHMENT

VII. SOURCES OF INFORMATION (Cont'd)

Selected records of wells within a 3-mile radius of Tenneco Polymers, obtained from the NJDEP, Bureau of Water Resources.

State of New Jersey, Department of Environmental Protection. Water Supply Overlay, Sheet Number 27, August 1975.

USGS Topographic Map, Beverly Quadrangle, Pennsylvania-New Jersey. 7.5 minute series 1966, photorevised 1973.

General Software Corporation, 1984. Draft Graphical Exposure Modeling System, U.S. EPA, Office of Pesticides and Toxic Substances, Landover, Maryland.

Federal Emergency Management Agency, National Flood Insurance Program, Flood Insurance Rate Map. Township of Burlington, New Jersey, Burlington County. Panel 3 of 8, Community Panel Number 340090 0003 B. Effective date: February 17, 1982.

Telecon note, 6/24/87: Conversation between the City of Burlington Water Works Plant Supervisor and Joann Wagner of NUS Corporation.

Gill, H.E. and G.M. Farlekos. 1976. Geohydrologic maps of the Potomac-Raritan-Magothy Aquifer System in the New Jersey Coastal Plain. Atlas HA-557.

Otto S. Zapecza, 1984. Hydrogeologic Framework of the New Jersey Coastal Plain, Regional Aquifer - Systems Analysis. U.S. Geological Survey Open-File Report 84-730. 61pp.

U.S. Department of the Interior, Gelogical Survey. Well inventory of wells producing more than 75 gallons per minute(gpm). Burlington County, New Jersey.

Commonwealth of Pennsylvania, Department of Environmental Resource. Sanitary Survey Forms for Evaluating Public Water Supplies: Bristol Borough Water and Sewer Authority.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D001890185

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	4	Organic Analysis:	3/17/85
SURFACE WATER	1	Compu Chem	3/17/85
WASTE		3308 Chapel Hill/Nelson Highway	
AIR		Research Triangle Park, NC 27709	
RUNOFF		Inorganic Analysis:	
SPILL		Rockly Mountain Analytical Labs	
SOIL	2	5530 Marshall Street	3/17/85
VEGETATION		Arvada, CO 80002	
OTHER Trip blanks	2		

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
HNu	OVA detected 2-5 ppm near working end of the landfill and at the sludge lagoon.
OVA	

IV. PHOTOGRAPHS AND MAPS

01 TYPE X GROUND ☐ AERIAL

02 IN CUSTODY OF NUS Corporation Region 2 FIT, Edison, NJ
(Name of organization or individual)

03 MAPS X YES ☐ NO

04 LOCATION OF MAPS NUS Corporation Region 2 FIT, Edison, NJ

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Documentation of field activities recorded in logbook numbers 1083 and 1084, filed under TDD #02-8412-15.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

NUS Corporation Region 2 FIT site reconnaissance and inspection, 01/07/85 and 01/17/85, respectively.

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 7 - OWNER INFORMATION

EPA

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D001890185

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER
Occidental Chemical Corporation	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

(Three further blank current-owner blocks: 01 NAME, 02 D+B NUMBER, 03 STREET ADDRESS (P.O. Box, RFD #, etc.), 04 SIC CODE, 05 CITY, 06 STATE, 07 ZIP CODE)

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER

10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER
Tenneco Polymers, Inc.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
1010 Milam, 0.0. Box 2511	

05 CITY	06 STATE	07 ZIP CODE
Houston	TX	77001

01 NAME	02 D+B NUMBER
Cary Chemical Co.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
Beverly Road, P.O. Box 116	

05 CITY	06 STATE	07 ZIP CODE
Burlington Twp.	NJ	08016

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

IV. REALTY OWNER(S) (If applicable, list most recent first)

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NJDEP background files

U.S. EPA, Federal Plaza, background files.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D001890185

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	Occidental Chemical Corporation
02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	Beverly Road, P.O. Box 116
04 SIC CODE	
05 CITY	Burlington Twp.,
06 STATE	NJ
07 ZIP CODE	08016
08 YEARS OF OPERATION	
09 NAME OF OWNER	

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	
11 D+B NUMBER	
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
13 SIC CODE	
14 CITY	
15 STATE	
16 ZIP CODE	

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	
02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	
04 SIC CODE	
05 CITY	
06 STATE	
07 ZIP CODE	
08 YEARS OF OPERATION	
09 NAME OF OWNER DURING THIS PERIOD	
01 NAME	
02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	
04 SIC CODE	
05 CITY	
06 STATE	
07 ZIP CODE	
08 YEARS OF OPERATION	
09 NAME OF OWNER DURING THIS PERIOD	
01 NAME	
02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	
04 SIC CODE	
05 CITY	
06 STATE	
07 ZIP CODE	
08 YEARS OF OPERATION	
09 NAME OF OWNER DURING THIS PERIOD	

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	
11 D+B NUMBER	
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
13 SIC CODE	
14 CITY	
15 STATE	
16 ZIP CODE	
10 NAME	
11 D+B NUMBER	
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
13 SIC CODE	
14 CITY	
15 STATE	
16 ZIP CODE	
10 NAME	
11 D+B NUMBER	
12 STREET ADDRESS (P.O. Box, RFD #, etc.)	
13 SIC CODE	
14 CITY	
15 STATE	
16 ZIP CODE	

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NJDEP background files.
U.S. EPA Federal Plaza background files.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NJ	D001890185

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Tenneco Polymers, Inc.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
Beverly Road, P.O. Box 116	

05 CITY	06 STATE	07 ZIP CODE
Burlington Township	NJ	08016

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE		05 CITY / 06 STATE / 07 ZIP CODE	
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE		05 CITY / 06 STATE / 07 ZIP CODE	

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE		05 CITY / 06 STATE / 07 ZIP CODE	
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE		05 CITY / 06 STATE / 07 ZIP CODE	

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS Corporation Region 2 FIT site reconnaissance and inspection, 1/7/85 and 1/17/85, respectively.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D001890185

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ F. WASTE REPACKAGED — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ H. ON SITE BURIAL — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ L. ENCAPSULATION — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ N. CUTOFF WALLS — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D001890185

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ S. CAPPING/COVERING 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ T BULK TANKAGE REPAIRED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ U GROUT CURTAIN CONSTRUCTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ V BOTTOM SEALED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ W GAS CONTROL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ X FIRE CONTROL 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ Y LEACHATE TREATMENT 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ Z. AREA EVACUATED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ 1 ACCESS TO SITE RESTRICTED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ 2. POPULATION RELOCATED 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

01 ☐ 3 OTHER REMEDIAL ACTIVITIES 02 DATE ______ 03 AGENCY ______
04 DESCRIPTION

No previous history.

III. SOURCES OF INFORMATION *(Cite specific references, e.g. state files, sample analysis, reports.)*

NJDEP background files.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	D001890185

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY ENFORCEMENT ACTION ☐ YES X NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY ENFORCEMENT ACTION

The state NJDEP acknowledged delistment of Tenneco Polymers (now Occidental Chemical Corporation) as a Treatment, Storage, and Disposal facility in a letter to the company dated May 29, 1986.

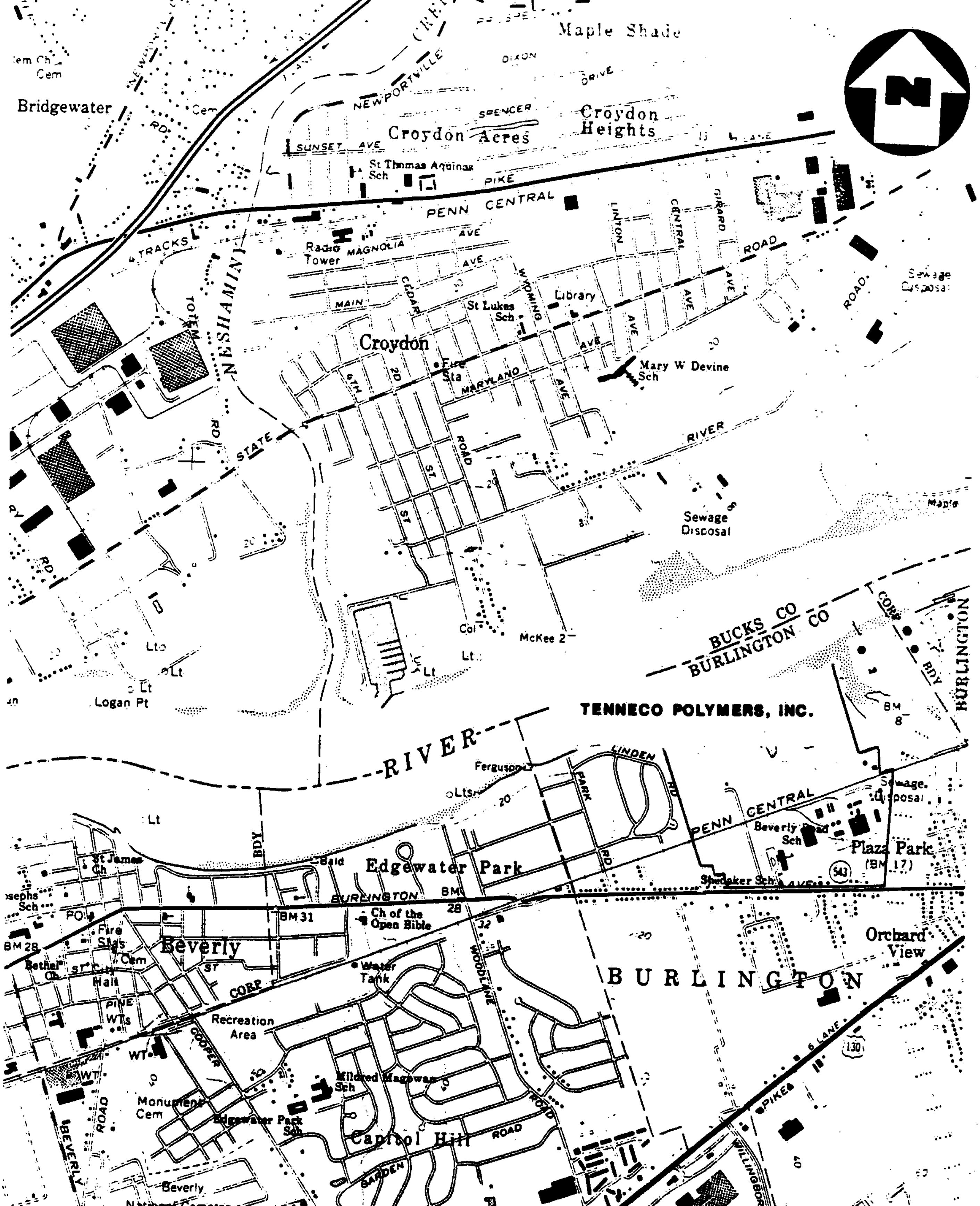
III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

U.S EPA, Federal Plaza, background files.

SECTION 3

MAPS AND PHOTOGRAPHS

TENNECO POLYMERS, INC.
BURLINGTON TOWNSHIP, N.J.
TDD# 02-8412-15



(QUAD) BEVERLY, N.J.

FIGURE 1

SITE LOCATION MAP

TENNECO POLYMERS, INC., BURLINGTON TWP., N.J.

SCALE: 1" = 2000'

NUS CORPORATION
A Halliburton Company

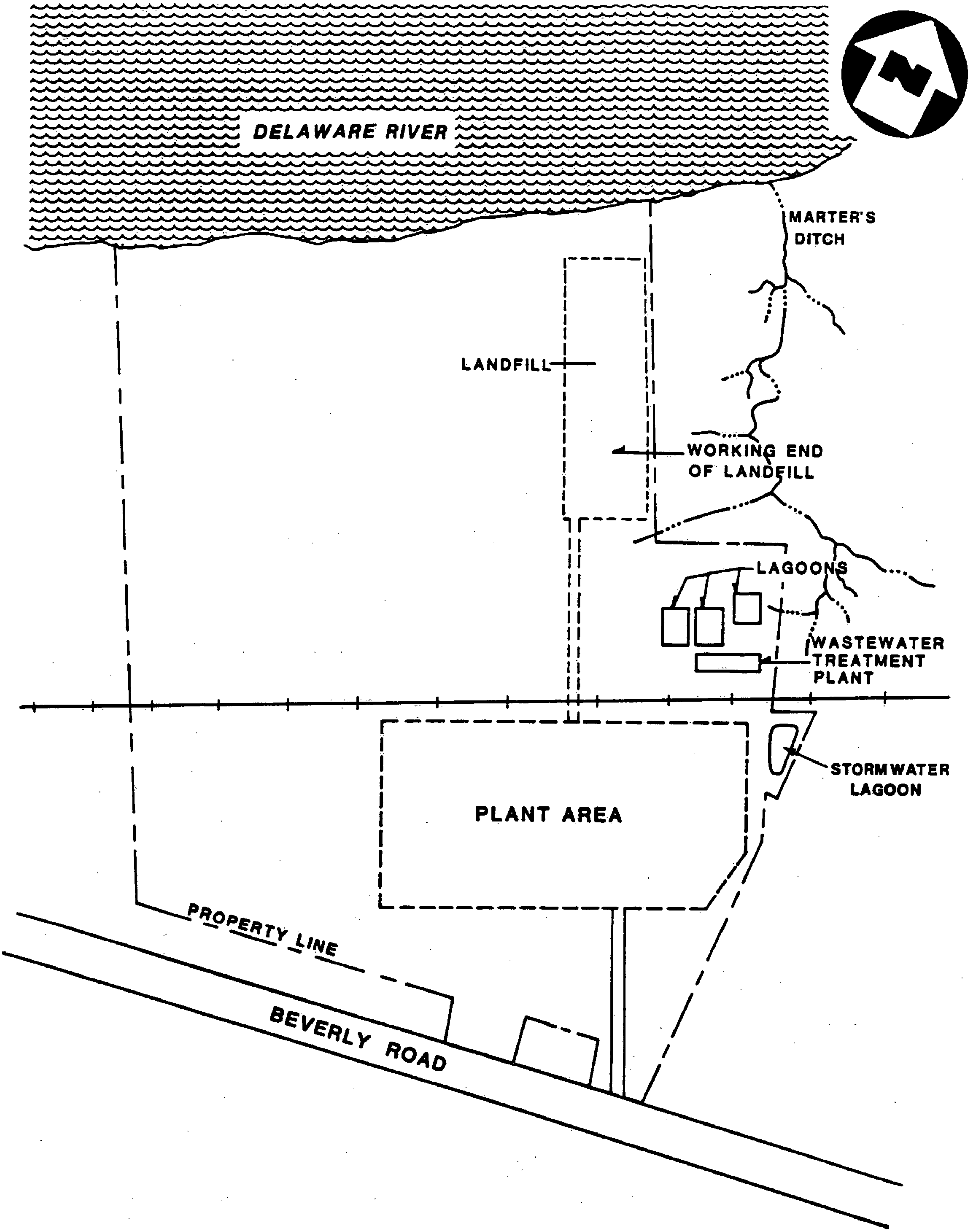


FIGURE 2

SITE MAP

TENNECO POLYMERS, INC., BURLINGTON TWP., N.J.

(NOT TO SCALE)

NUS CORPORATION

A Halliburton Company

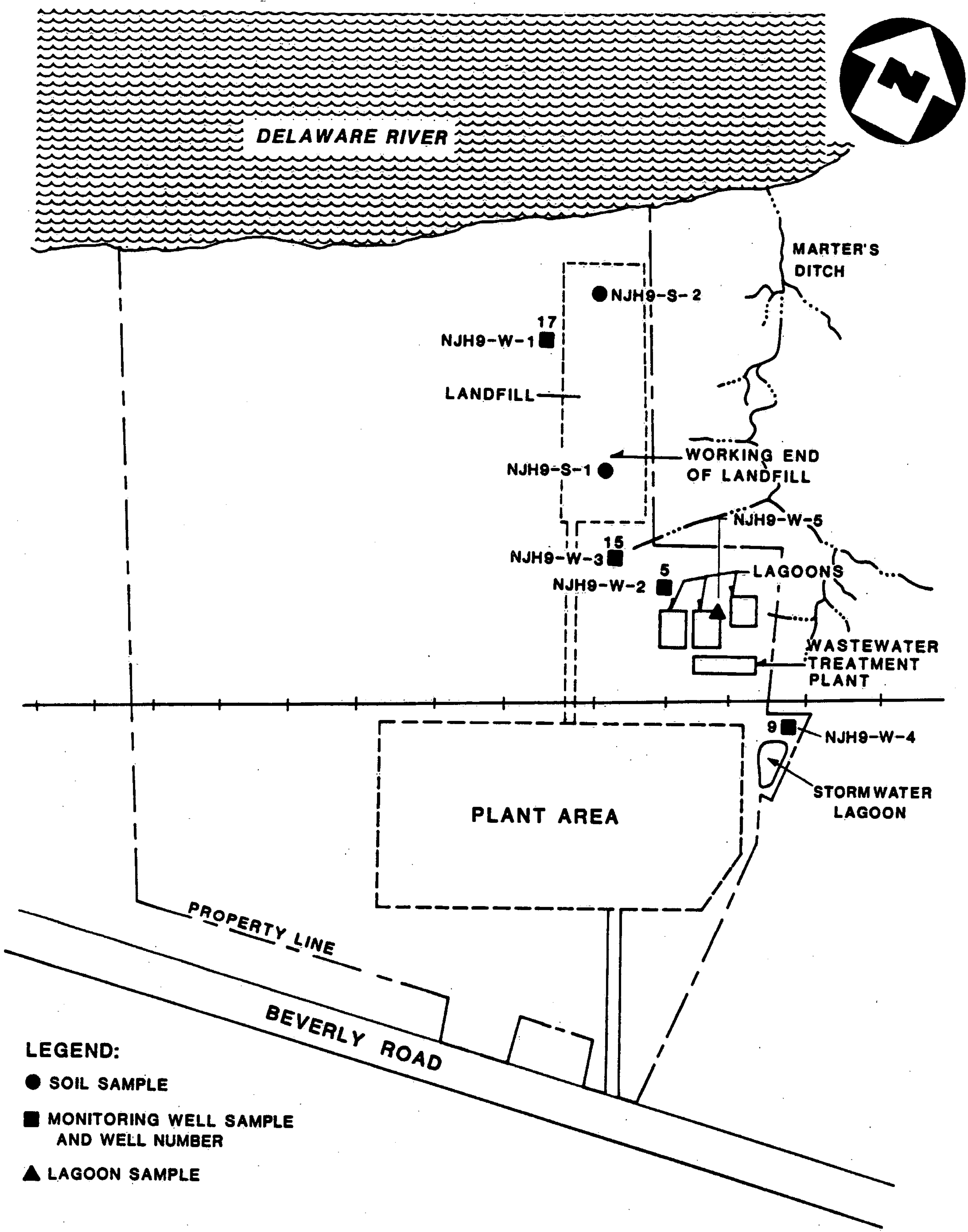


FIGURE 3

SAMPLE LOCATION MAP

TENNECO POLYMERS, INC., BURLINGTON TWP., N.J.

(NOT TO SCALE)

NUS CORPORATION
A Halliburton Company

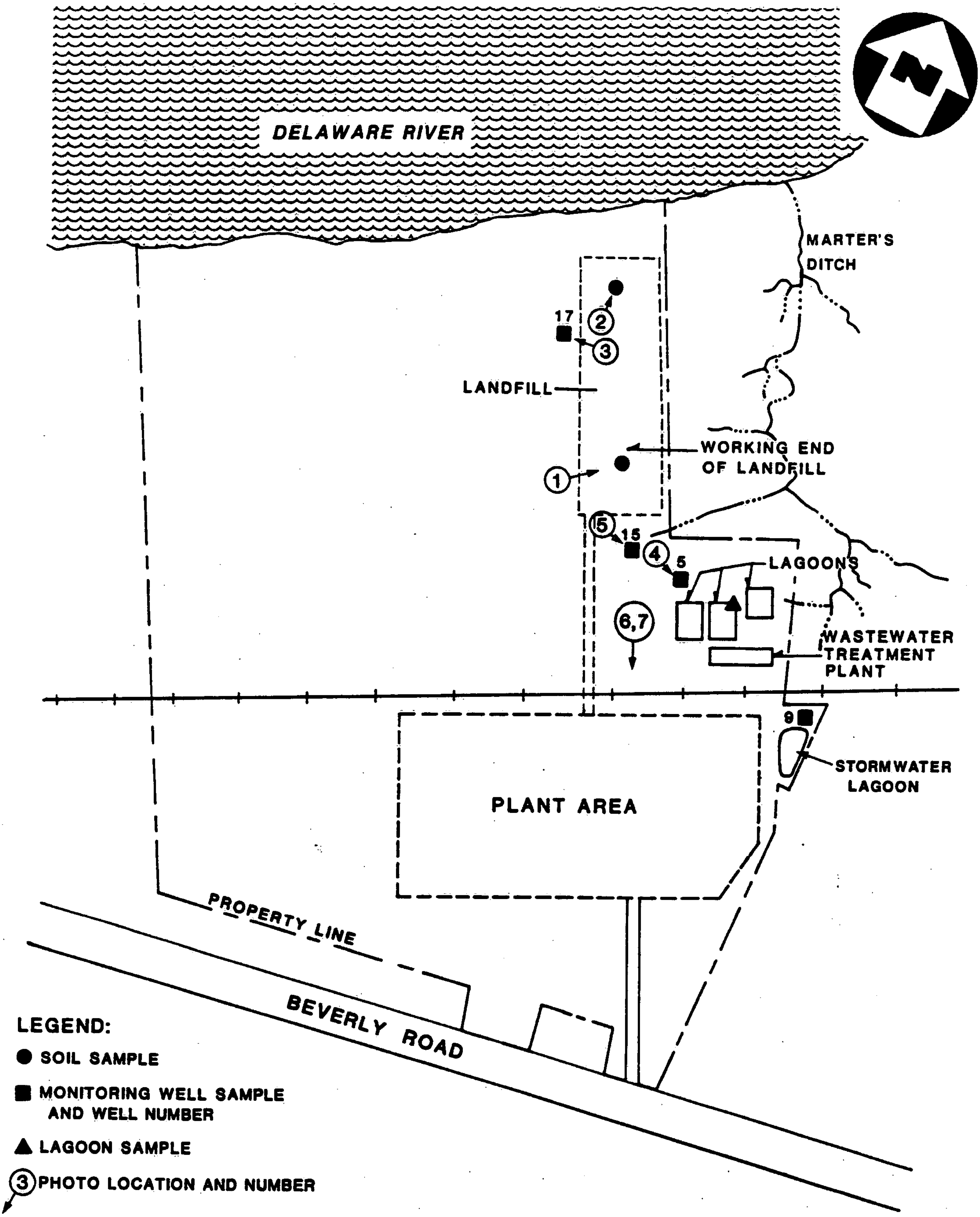


FIGURE 4

PHOTO LOCATION MAP

TENNECO POLYMERS, INC., BURLINGTON TWP., N.J.

(NOT TO SCALE)

NUS CORPORATION

A Halliburton Company

TENNECO POLYMERS, INC.

BURLINGTON TOWNSHIP, NEW JERSEY

02-8412-15
JANUARY 17, 1987

EXHIBIT 1 PHOTOGRAPH LOG

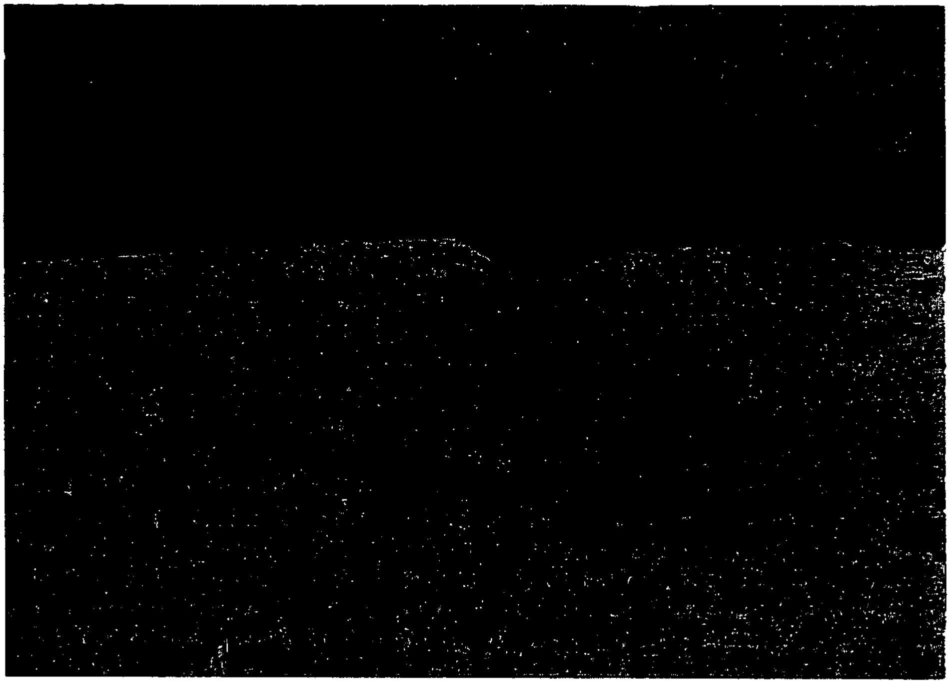
TENNECO POLYMERS, INC.
BURLINGTON TOWNSHIP, NEW JERSEY

1/17/85

PHOTO LOG INDEX

Photo Number	Description	Time
1.	Sample NJH9-S-1 from working face of landfill. Sampler: G. Beyerman. Photographer: J. Logan	1109
2.	Sample NJH9-S-2 from old section of landfill. Sampler: G. Beyerman. Photographer: J. Logan.	1128
3.	Sample NJH9-W-1 from Well #17. Sampler: G. Rojek. Photographer: J. Logan.	1219
4.	Sample NJH9-W-2 from Well #5. Sampler: G. Rojek. Photographer: J. Logan.	1409
5.	Sample NJH9-W-3 from Well #15. Sampler: G. Beyerman. Photographer: J. Logan.	1500
6.	Sample NJH9-W-5 from lagoon. Sampler: G. Rojek. Photographer: J. Logan.	1605
7.	Sample NJH9-W-4 from Well #9. Sampler: D. Trube. Photographer: J. Logan.	1644

TENNECO POLYMERS, INC.
BURLINGTON TOWNSHIP, NEW JERSEY



1. January 17, 1985 1109
Sample NJH9-S-1 from working face of landfill.
Sampler: G. Beyerman. Photographer: J. Logan.

2. January 17, 1985 1120
Sample NJH9-S-2 from old section of landfill.
Sampler: G. Beyerman. Photographer: J. Logan.

TENNECO POLYMERS, INC.
BURLINGTON TOWNSHIP, NEW JERSEY

3. January 17, 1985 1219
Sample NJH9-W-1 from Well #17
Sampler: G. Rojek. Photographer: J. Logan.

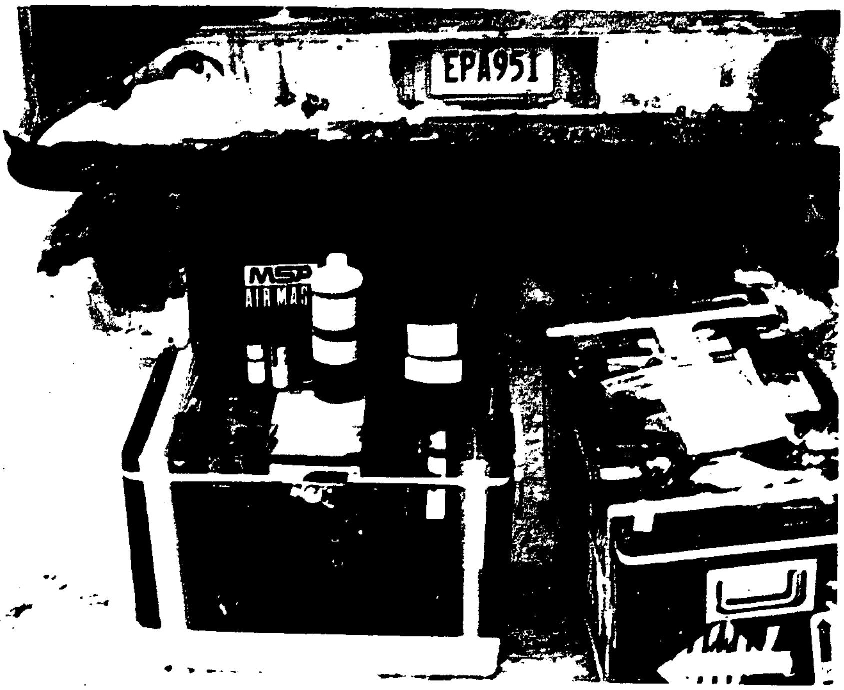
4. January 17, 1985 1219
Sample NJH9-W-2 from Well #5.
Sampler: G. Rojek. Photographer: J. Logan.

TENNECO POLYMERS, INC.
BURLINGTON TOWNSHIP, NEW JERSEY

5. January 17, 1985 1500
Sample NJH9-W-3 from Well #15.
Sampler: G. Beyerman. Photographer: J. Logan.

6. January 17, 1985 1605
Sample NJH9-W-5 from lagoon.
Sampler: G. Rojek. Photographer: J. Logan.

TENNECO POLYMERS, INC.
BURLINGTON TOWNSHIP, NEW JERSEY



7. January 17, 1985 1644
Sample NJH9-W-4 from Well #9.
Sampler: D. Trube. Photographer: J. Logan.

SECTION 4

DOCUMENTATION RECORDS FOR HAZARD RANKING SYSTEM

R-584-2-85-2
Rev. 3

FIT QUALITY ASSURANCE TEAM
DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

FACILITY NAME: Tenneco Polymers, Inc.

LOCATION: Burlington Township, New Jersey

DATE SCORED: October 23, 1987

PERSON SCORING: Joann L. Wagner

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):
NUS Corporation Region 2 FIT site reconnaissance and inspection, 1/7/85 and 1/17/85, respectively.
New Jersey Department of Environmental Protection (NJDEP) background files.

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:
The computation of land area irrigated and conversion to population were not scored for the groundwater and surface water routes, as there is insufficient information available as to the acreage irrigated by such intakes.

COMMENTS OR QUALIFICATIONS:
The inorganic contaminants found in monitoring well samples were not used to score the Groundwater Route, as their presence cannot be strictly attributed to on-site processes. Instead, organic contaminants found in the various media sampled were used to score the Groundwater Route.
(Continued)

No readings above background were detected in the ambient air downwind from the facility on either the Organic Vapor Analyzer (OVA) flame ionization detector or the HNu photoionization detector. Therefore, the Air Route was scored zero.

The Burlington Township Fire Chief has stated that he does not consider the Tenneco Polymers facility to pose a threat of fire or explosion because of the company's strict safety policies. Therefore, the Fire and Explosion Hazard Mode was not scored.

GROUNDWATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

There is no observed release of contaminants to groundwater, as no upgradient wells were sampled that are not under the influence of the site. See sample location map, Figure 3, Section 3.

Ref. #1

Rationale for attributing the contaminants to the facility:

Not applicable.

* * *

2 ROUTE CHARACTERISTICS

<u>**Depth to Aquifer of Concern**</u>

Name/description of aquifer(s) of concern:

The aquifer of concern is the middle aquifer of the Potomac-Raritan-Magothy aquifer system. In southern New Jersey, there are five mappable hydrologic units within this aquifer system. The five units include three aquifers, referred to as lower, middle, and upper with respect to their stratigraphic position within the system, and two confining beds that lie between the aquifers. The lower aquifer thins and wedges out in the updip direction towards the Delaware River and also to the north (Ref. 2, page 6). It is not present on the Tenneco Polymers property (Ref. 2, pages 16-18).

Sections G-G' and F-F' (Ref. 2, pages 16 and 15) depict the general stratification within 3 miles of the site. Well No. 5-767 is the Tenneco Polymers test well No. 4, and well No. 5-658 is a Willingboro Municipal Utilities Authority public supply well located approximately 2.9 miles south of the site. The lithology on site consists of a thin confining bed overlying the middle aquifer and dipping uniformly to the southeast. The on-site well (No. 5-767) log summary indicates that this aquifer extends from -13 to -129 feet MSL(or 23 to 139 feet below ground surface, given a surface altitude of 10 feet MSL; Ref. 2, page 13). Near the Willingboro target well, the dipping strata identified above are overlain by the upper aquifer and another confining bed; here the middle aquifer extends from -62 to -238 feet MSL (or 81 to 257 feet below ground surface, given a surface altitude of 19 feet MSL; Ref. 2, page 12). Well No. 5-658 is screened from -179 to -255 feet below land surface (Ref. 5, pages 8, 9 and 19), and within the aquifer of concern.

The Potomac-Raritan-Magothy aquifer system outcrops on both the New Jersey and Pennsylvania sides of the Delaware River (Ref. 2, page 7). In the outcrop area in Bucks County, Pennsylvania, the aquifer system is referred to as unconsolidated deposits of the Coastal Plain Formation (Ref. 6, pages 3, 5-8). The Delaware River does not appear to be deep enough to cut through this aquifer, as the depth of a public supply well in the Coastal Plain Formation on the Pennsylvania side of the river is approximately 75 feet (well No. 10, Ref. 7, pages 3, 4, and 6). The river has been estimated to be as much as 40 feet deep in this area (Ref. 8). Therefore, the aquifer of concern includes wells in the middle aquifer of the Potomac-Raritan-Magothy aquifer system on both sides of the Delaware River.

Depth(s) from the ground surface to the highest seasonal level of the saturated zone water table(s) of the aquifer of concern:
Water level measurements of four on-site monitoring wells taken prior to evacuation on January 17, 1985 ranged from approximately 13 feet to 18.5 feet below ground surface (Ref. #1). The static water level of the industrial well cited above was reported to be 14 feet below ground surface on November 11, 1964 (Ref. 3, pages 1 and 2).

Depth from the ground surface to the lowest point of waste disposal/storage:
The depth from the ground surface to the bottom of the sludge dewatering lagoons is unknown. A depth of 6 feet has been assumed as per guidelines established for HRS scoring and documentation.
Ref. #1 and 9

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

44 inches

Ref. #9

Mean annual lake or seasonal evaporation (list months for seasonal):

34 inches

Ref. #9

Net precipitation (subcontract the above figures):

10 inches

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Surficial soil types on site include the Galestown sand, 0-5 percent slopes; Klej fine sand, 0-2 percent slopes; made land, dredged coarse material; and tidal marsh. Soils classified as tidal marsh are, by definition, saturated, and are therefore not considered in scoring the permeability associated with these soil types. No permeability values are provided for made land, dredged coarse material (Ref. 10). The log of an on-site industrial well indicates 2-foot layers each of sandy clay and river mud above the water-bearing zone of interbedded sand, gravel, and clay (Ref. 3, pages 1 and 2).

Permeability associated with soil type:

A permeability of 10^{-5} to 10^{-7} cm/sec is assigned to the layer of river mud identified in the above-cited well, assuming the permeability of this layer is comparable to that of silt.

Ref. #9

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

Liquid, solid, sludge.

Ref. #11, pages 1, 28, 34, 37, 41-44

3 CONTAINMENT

<u>Containment</u>

Method(s) of waste or leachate containment evaluated:

Effluent treatment plant wastewaters are discharged via a 24-inch outfall pipe to Marter's Ditch, and intermittent tributary to the Delaware River which flows along the east side of the Tenneco property. In addition, noncontact cooling waters are discharged to an on-site storm water lagoon. Both of these discharges are New Jersey Pollutant Discharge Elimination System (NJPDES)-permitted. Sludges are dewatered in three on-site lagoons and are subsequently landfilled, as are other solid wastes. The landfill and lagoons are not lined.

Ref. #11, pages 5, 10, 23, 34, 50, 51

Method with highest score:

Surface impoundment (lagoon) with no liner.

Ref. #9

4 WASTE CHARACTERISTICS

<u>Toxicity and Persistence</u>

Compound(s) evaluated:

Methylene Chloride

trans-1,2-Dichloroethene

Trichloroethene

Vinyl Chloride

Ref. 24, pages 1, 6, 10, 14, 17, 21, 27

Compound with highest score:

Vinyl chloride, with a toxicity/persistence value of 15, has the highest score of the compounds listed above.

Ref. 9 and 12

<u>Hazardous Waste Quantity</u>

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

The quantity of wastewater treatment plant sludge landfilled in 1983 and 1984 alone was approximately 10,675 yd^3 (I.D. 12, Ref 13). Prior to being landfilled, the sludge was placed in three on-site dewatering lagoons (Ref. 11, page 1). An aqueous sample collected from one of those lagoons on January 17, 1985 was found to contain 450 ppb of vinyl chloride (Ref. 1, pages 19 and 24; Ref. 24, pages 1 and 4).

Basis of estimating and/or computing waste quantity:
Written correspondence from Fred Kanzler of Tenneco Polymers, dated January 31, 1985.
Ref. #13

5 TARGETS

Groundwater Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:
The middle aquifer of the Potomac- Raritan- Magothy aquifer system is known to be used for municipal supply and industrial purposes (Ref. 5, pages 2, 5, 8, 11). Other uses may include commercial, irrigational, and domestic purposes (Ref. 4, pages 4-7)

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:
The nearest well drawing from the aquifer of concern for drinking purposes is located on site approximately 2150 feet west of the sludge dewatering lagoon in which vinyl chloride was detected.
Ref. 5, pages 11-13; Ref. 11, page 39

Distance to above well or building:
Approximately 0.4 mile.
Ref. 11, page 39

Population Served by Groundwater Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:
The Burlington Township Water Department and the Willingboro Township Municipal Utilities Authority provide water to approximately 12,000 customers

each (Ref. 14 and 15). The Burlington Township public supply well No. 2 is screened at a depth of 163 to 224 feet below ground surface (Ref. 3, pages 14 and 15; see also Ref. 5, page 2). The nearest well at a similar distance from the Delaware River and for which there is information available is well No. 5-448 (Ref. 2, pages 12 and 14). The well log summary for well No. 5-448 indicates that the upper aquifer of the Potomac-Raritan-Magothy aquifer system occurs at a depth of 62 to 144 feet below ground surface, and that the top of the middle aquifer occurs at a depth of 193 feet below ground surface (adding the given land surface altitude of 40 feet to the depths below sea level to the aquifer units, Ref. 2, page 12). As the Burlington Township well No. 2 is located approximately halfway between cross-sections G-G' and F-F', and the depth to the aquifer units increases from G-G' to F-F', it would appear likely that the Burlington Township well is screened in the middle aquifer (Ref. 2, pages 14-16). The Bristol Borough Water and Sewer Authority does not currently use the only one of its wells within a 3-mile radius for public supply (Ref. 3, pages 3, 4, 7, and 9). See Three-Mile Vicinity Map at end of References, Section 8, for locations of wells with respect to the site.

12,000	Burlington Township Water Department
12,000	Willingboro Township Municipal Utilities Authority
24,000	Total

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre).

There are at least 10 wells used for irrigational purposes within a 3-mile radius of Tenneco Polymers. However, it cannot be determined whether all of these wells are drawing from the middle aquifer of the Potomac-Raritan-Magothy aquifer system. Furthermore, the agricultural data bases provide only the total acreage of the property on which a well is located, not the acreage which is actually irrigated. Therefore, the total land area irrigated and conversion to population are unknown. This will not affect scoring, as the population served by identified water-supply wells exceeds 10,000 (see above).

Ref. 4, pages 4, 5, and 7; Ref. 21, pages 1-8

Total population served by groundwater within a 3-mile radius:

At least 24,000

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

There is no observed release of contaminants to surface water, as no downgradient surface water samples were collected.

Ref. #1, pages 2, 22-24

Rationale for attributing the contaminants to the facility:

Not applicable.

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

The average slope of the facility was measured from the estimated location of soil sample NJH9-S-1 to the eastern edge of the landfill, pathway distance AB on page 39 of Ref. 11. Soil sample NJH9-S-1 was used as the reference point for measuring slope, as no organic contaminants were detected in soil sample NJH9-S-2 (Ref. 24, pages 1-4, 30-32). A vertical distance of 6 feet was assumed based on the apparent height of the landfill.

$$\frac{6}{100} = 0.06 \times 100 = 6\%$$

Ref. #11, page 39

Name/description of nearest downslope surface water:

The Delaware River is the nearest downslope surface water, and forms the northern property boundary. There are several small on-site runoff channels which flow eastward across the site into Marter's Ditch, an intermittent tributary of the Delaware flowing parallel to the eastern property boundary. The most likely pathway of contaminant runoff is via these channels and the Marter's Ditch. The Delaware River is approximately 1600 feet wide in the immediate vicinity of the site.

Ref. #1; Ref. 11, page 34; Ref. 16

Average slope of terrain between facility and above-cited surface water body in percent:

The average slope of the terrain was measured from soil sample NJH9-S-1 to the estimated pathway distance (BCDE on page 39 of Ref. 11) to the Delaware River. A vertical distance of 5 feet is assumed as the difference in surface elevation from the landfill to the river.

$$\frac{5}{1500} = 0.0033 \times 100 = 1\%$$

Ref. #11, page 39; Ref. #16

Is the facility located either totally or partially in surface water?
No.

Ref. #1 and 16

Is the facility completely surrounded by areas of higher elevation?

No; a large portion of the property is located in the floodplain of the Delaware River. The entire site and the adjacent properties occur at an elevation of less than 20 feet above sea level.

Ref. #16 and 17

1-Year 24-Hour Rainfall in Inches

2.5-3.0 inches.

Ref. #9

Distance to Nearest Downslope Surface Water

The distance from analytically documented contamination (soil sample NJH9-S-1) to the nearest downslope surface water (the Delaware River) is approximately 1,600 feet.

Ref. #11, pages 31; Ref. 24 pages 1 and 27

Physical State of Waste

Liquid, solid, sludge.

Ref. #11, pages 1, 28, 34, 37, 41-44

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Waste PVC material, also referred to as PVC sludge drag-out material (Ref. 11, page 26) and scrap PVC material (Ref 11, page 37), was accumulated in several drag-out pit areas. Water was separated from the solids at these locations, and the resulting solids mixed with cover material and landfilled (Ref. 11, page 41). An inspection report indicates that several areas of drag-out materials were exposed, although it is unclear whether the material was in the waste piles prior to disposal in the landfill or in the landfill itself when it was observed (Ref. 11, page 26). Sludges from the facility's wastewater treatment plant were also landfilled subsequent to drying in three sludge dewatering lagoons (Ref. 11, page 41). The landfill was not lined, and appears to have been diked along one side only (Ref. 11 page 33). Several pools of water were noted to have accumulated on top of the landfill during a previous inspection (Ref. 11, page 1).

Method with highest score:

Landfill not adequately covered and diversion system unsound.

Ref. #9

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

Trichloroethene was detected in a soil sample collected from the landfill in January 1985.

Ref. #24, pages 1 and 27

Compound with highest score:

Trichloroethene has a toxicity/persistence value of 12.

Ref. #9 and 12

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

The quantity of wastewater treatment plant sludge landfilled in 1983 and 1984 alone was approximately 10,675 yd^3 (Ref. 12, Ref. 13); an additional 884 yd^3 of scrape-out materials were landfilled during this same period (ID 27, Ref. 13). The total quantity of hazardous wastes therefore is approximately 11,600 yd^3.

Ref. #13

Basis of estimating and/or computing waste quantity:

Written correspondence from Fred Kanzler of Tenneco Polymers, dated January 31, 1985.

Ref. #13

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

The Delaware River is used for noncontact recreational boating within 3 miles downstream of the Tenneco Polymers property. There are two surface water

intakes within 3 miles upstream of the facility.
Ref. 7, pages 3 and 4; Ref. 8; Ref. 18

Is there tidal influence?
Yes; tidal influence extends as far as Trenton, New Jersey, approximately 15-20 miles upstream from the site.
Ref. #8

Distance to a Sensitive Environment
Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:
Greater than 2 miles.
Ref. #16

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:
Greater than 1 mile.
Ref. #16

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:
Greater than 1 mile.
Ref. #19

Population Served by Surface Water
Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:
There are no surface water intakes within 3 miles downstream of the site. However, a surface water intake located approximately 1.5 miles upstream from the Tenneco Polymers property serves a population of 10,546 in the City of Burlington,

NJ (Ref. 18 and 20). The Bristol Borough Water and Sewer Authority provides service via wells and a surface water intake to a population of approximately 26,400 in Bristol Borough and a portion of Bristol Township, PA (Ref: 6, pages 4, 11-14). The intake is located approximately 2.2 miles upstream from the Tenneco Polymers property (Ref. 7, pages 3, 4, and 8; Ref. 16).

10546	City of Burlington Water Department
26400	Bristol Borough Water and Sewer authority
36,946	

See Three-Mile Vicinity Map at end of References, Section 8, for locations of intakes with respect to the site.

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

The above-cited intakes are not known to be used for irrigational purposes (Ref. 7, pages 3, 4, 11, and 12; Ref. 20). There are no other known surface intakes for irrigation within 3 miles of the site (Ref. 18; Ref. 21, pages 3, 9-15).

Total population served:

Approximately 36,900.

Name/description of nearest of above water bodies:

The Delaware River is approximately 1600 feet wide along the Tenneco Polymers property. In the vicinity of the surface intakes upstream, the river is divided into two branches by Burlington Island.

Ref. 16 and 18

Distance to above-cited intakes, measured in stream miles.

The nearest intake is located approximately 1.5 miles upstream.

Ref. 16

See also Three-Mile Vicinity Map at end of References, Section 8.

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

Readings of 5-6 ppm above background were detected in holes at the edge of the working end of the landfill on the OVA during the site reconnaissance. Occasional readings of 1-2 ppm above background were detected on the OVA in the breathing zone at that time also. Because no readings above background were obtained on the HNu, it is assumed that the OVA readings were an indication of traces of methane in the air. There is no documentation of readings above background on either instrument during the site inspection. Therefore, the Air Route was scored zero.

Ref. #1

Date and location of detection of contaminants

Not applicable.

Methods used to detect the contaminants:

Not applicable.

Rationale for attributing the contaminants to the site:

Not applicable.

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Not applicable.

Most incompatible pair of compounds:

Not applicable.

Toxicity

Most toxic compound:

Not applicable.

Hazardous Waste Quantity

Total quantity of hazardous waste:

Not applicable.

Basis of estimating and/or computing waste quantity:

Not applicable.

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi   0 to 1 mi   0 to 1/2 mi   0 to 1/4 mi

Not applicable.

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Not applicable.

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Not applicable.

Distance to critical habitat of an endangered species, if 1 mile or less:
Not applicable.

Land Use

Distance to commercial/industrial area, if 1 mile or less:
Not applicable.

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:
Not applicable.

Distance to residential area, if 2 miles or less:
Not applicable.

Distance to agricultural land in production within past 5 years, if 1 mile or less:
Not applicable.

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:
Not applicable.

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?
Not applicable.

FIRE AND EXPLOSION

1 CONTAINMENT

Hazardous substance present:

The local fire chief has stated that he does not consider the facility to pose a threat of fire and/or explosion. Therefore, this hazard mode was not scored.
Ref. #22

Type of containment, if applicable:

Not applicable.

* * *

2 WASTE CHARACTERISTICS

<u>Direct Evidence</u>

Type of instrument and measurements:

Not applicable.

<u>Ignitability</u>

Compound used:

Not applicable.

<u>Reactivity</u>

Most reactive compound:

Not applicable.

<u>Incompatibility</u>

Most incompatible pair of compounds:

Not applicable.

* * *

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Not applicable.

Basis of estimating and/or computing waste quantity:

Not applicable.

* * *

3 TARGETS

Distance to Nearest Population

Not applicable.

Distance to Nearest Building

Not applicable.

Distance to Sensitive Environment

Distance to wetlands:

Not applicable.

Distance to critical habitat:

Not applicable.

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Not applicable.

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:
Not applicable.

Distance to residential area, if 2 miles or less:
Not applicable.

Distance to agricultural land in production within past 5 years, if 1 mile or less:
Not applicable.

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:
Not applicable.

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?
Not applicable.

Population Within 2-Mile Radius
Not applicable.

Buildings Within 2-Mile Radius
Not applicable.

DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

There have been no documented incidents of injury, illness, or death resulting from waste disposal practices at the Tenneco Polymers Site.

Ref. 11

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

The Tenneco Polymers property is partially fenced with a guarded main gate. Access is possible at remote locations around the perimeter of the property. The landfilled portion of the property is patrolled by plant security. There are no physical barriers preventing access to the sludge lagoons or to the landfill itself.

Ref. 1

* * *

3 CONTAINMENT

Type of containment, if applicable:

Dried sludges and waste PVC materials were landfilled on site. There is insufficient information available to determine the depth of the cover material on the landfill (Ref. 11, pages 1, 26, 28, 31, 33, 41, 45, 50, 51). For scoring purposes, a cover depth of less than 2 feet will be assumed. If, however, the depth of cover on the landfill is greater than 2 feet, the containment factor and the Direct Contact Hazard Mode scores would be zero (Ref. 9). The containment factor is not evaluated for the sludge dewatering lagoons or the waste PVC piles, as the Direct Contact score is to be based on present site conditions. The lagoons were being taken out of service in January 1985 and may no longer contain wastes. It is not known if waste PVC piles are currently accumulated on-site (Ref. 1, page 10).

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Vinyl chloride, methylene chloride, trichloroethene.

Ref. 24, pages 1, 21, 27

Compound with highest score:

All of the above contaminants have a toxicity value of 2.

Ref. #12

5 TARGETS

Population Within One-Mile Radius

Approximately 5240

Ref. 23

Distance to Critical Habitat (of Endangered Species)

Greater than 1 mile.

Ref. 19

SECTION 5

HAZARD RANKING SYSTEM SCORING FORMS

SECTION 6

BIBLIOGRAPHY OF INFORMATION SOURCES

BIBLIOGRAPHY OF INFORMATION SOURCES

HRS MODEL

	SOURCE	LOCATION
1.	Documentation of NUS Corporation Region 2 FIT site reconnaissance and site inspection, 01/07/85 and 01/17/85, field notebook numbers 1083 and 1084 respectively.	NUS Corp. Edison, NJ
2.	Otto S. Zapecza, 1984. Hyrogeologic Framework of the New Jersey Coastal Plain, Regional Aquifer-System Analysis. U.S. Geological Survey Open-File Report 84-730. 61 pp.	NUS Corp. Edison, NJ
3.	Selected records of wells within a 3-mile radius of Tenneco Polymers, obtained from the New Jersey Department of Environmental Protection, Division of Water Resources.	NUS Corp. Edison, NJ
4.	Rush, F.E. 1962. Records of Wells and Groundwater Quality in Burlington County, New Jersey. Water Resources Circular No. 7. 104 pp.	NUS Corp. Edison, NJ
5.	U.S. Department of the Interior, Geological Survey. Well inventory of wells producing more than 75 gallons per minute (gpm). Burlington County, New Jersey	NUS Corp. Edison, NJ
6.	Bucks County Planning Commission, January 1982. Bucks County Water Supply Update, 1981. 51 pp.	NUS Corp. Edison, NJ
7.	Commonwealth of Pennsylvania, Department of Environmental Resources. Sanitary Survey Forms for Evaluating Public Water Supplies: Bristol Borough Water and Sewer Authority. Also included are telecon notes verifying well usage information.	NUS Corp. Edison, NJ
8.	Telecon note, 6/25/87: Conversation between John Rattie of the Delaware River Basin Commission, Trenton Office, and Joann Wagner of NUS Corporation.	NUS Corp. Edison, NJ
9.	Uncontrolled hazardous waste site ranking system. A user's manual. 40 CFR, Part 300, Appendix A, 1986.	NUS Corp. Edison, NJ
10.	U.S. Department of Agriculture, Soil Conservation Service in cooperation with the New Jersey Agricultural Experiment Station. October 1971. Soil Survey of Burlington County, New Jersey. 120 pp.	NUS Corp. Edison, NJ
11.	New Jersey Department of Environmental Protection (NJDEP) background files.	NUS Corp. Edison, NJ
12.	Sax, N.I. Dangerous properties of industrial materials. 6th ed. New York, Van Nostrand Reinhold Co. 1984.	NUS Corp. Edison, NJ

BIBLIOGRAPHY OF INFORMATION SOURCES (CONT'D)

HRS MODEL

SOURCE		LOCATION
13.	Letter from Fred Kanzler of Tenneco Polymers, Inc. to Joseph Logan of NUS Corporation, dated January 31, 1985.	NUS Corp. Edison, NJ
14.	Telecon note, 6/24/87: Conversation between Paul Scully of the Burlington Township Water Department and Charles LoBue of NUS Corporation.	NUS Corp. Edison, NJ
15.	Telecon note, 9/16/87: Conversation between Harry Killian, Executive Director of the Willingboro Municipal Utilities Authority, and Joann Wagner of NUS Corporation.	NUS Corp. Edison, NJ
16.	U.S. Department of the Interior, Geological Survey. Topographic Map, Beverly Quadrangle, Pennsylvania - New Jersey. 7.5 minute series. 1966, photorevised 1973.	NUS Corp. Edison, NJ
17.	Federal Emergency Management Agency, National Flood Insurance Program, Flood Insurance Rate Map. Township of Burlington, New Jersey, Burlington County. Panel 3 of 8, Community Panel Number 340090 0003B. Effective date: February 17, 1982.	NUS Corp. Edison, NJ
18.	State of New Jersey, Department of Environmental Protection. Water Supply Overlay, Sheet Number 27, August 1975.	NUS Corp. Edison, NJ
19.	Endangered and Threatened Wildlife and Plants. Department of the Interior, U.S. Fish and Wildlife Service. 50 CFR 17.11 and 17.12, July 20, 1984.	NUS Corp. Edison, NJ
20.	Telecon note, 6/24/87: Conversation between Mr. Fahey, Burlington City Water Works Plant Supervisor, and Joann Wagner of NUS Corporation.	NUS Corp. Edison, NJ
21.	NJDEP, Bureau of Water Allocation. Agricultural Data Base of Water Usage Certificates, Burlington County, New Jersey.	NUS Corp. Edison, NJ
22.	Telecon note, 6/25/87: Conversation between Craig Leshner, Burlington Township Fire Chief, and Joann Wagner of NUS Corporation.	NUS Corp. Edison, NJ
23.	General Software Corporation, 1984. Draft Graphical Exposure Modeling System (GEMS) User's Guide. Prepared for the U.S. EPA, Office of Pesticides and Toxic Substances. Landover, Maryland.	NUS Corp. Edison, NJ
24.	U.S. EPA Contract Laboratory Program, Sample Management Office. Analytical results of samples collected from Tenneco Polymers, Inc. by NUS Corporation Region 2 FIT on 01/17/85.	NUS Corp. Edison, NJ

SECTION 7

PRESS RELEASE SUMMARY-MITRE HAZARD RANKING SYSTEM

PRESS RELEASE SUMMARY

Tenneco Polymers, Inc., now owned by Occidental Chemical Corporation, is located on approximately 50 acres of property along the Delaware River in Burlington Township, New Jersey. Tenneco Polymers has been in operation at this location since 1965, manufacturing polyvinyl chloride (PVC) for various industrial applications. Sludge from the facility's wastewater treatment plant was placed in unlined dewatering lagoons prior to disposal in an on-site landfill. PVC reactor wastes were also placed in the landfill. The lagoons and the landfill were not lined, and were scheduled for closure in March 1985. On-site monitoring wells were installed as a requirement of the facility's New Jersey Pollutant Discharge Elimination System permit for the sludge lagoons; there are also several production wells on the property.

Several densely populated urban areas are located within a 3-mile radius of the site, as are scattered rural and suburban areas. Residents in the vicinity are dependent upon both groundwater and surface water as their source of potable water. Municipalities served by public supply wells located within a 3-mile radius and drawing from the aquifer of concern include Burlington and Willingboro Townships in New Jersey. Surface water intakes within 3 miles of the site supplement the well supplies of Bristol Borough, Pennsylvania, and are the primary source of public supply for the City of Burlington, New Jersey. These upstream surface intakes are considered as potential targets because of the tidal influences in the Delaware River.

Sampling conducted in 1985 revealed the presence of several volatile organics in a soil sample collected from the landfill, in an aqueous sample taken from a sludge dewatering lagoon, and in several monitoring well samples. Elevated levels of numerous heavy metals were also detected in the groundwater samples, but were not found in the landfill or lagoon samples.

SECTION 8

ATTACHMENTS- CITED DOCUMENTS

REFERENCE #1

TENNECO CHEMICALS
PROJECT MANAGER: JOE LOGAN
TDD #02-8412-15
FIELD NOTEBOOK 1083
JANUARY 3, 1985

RECON.

Page 1

1

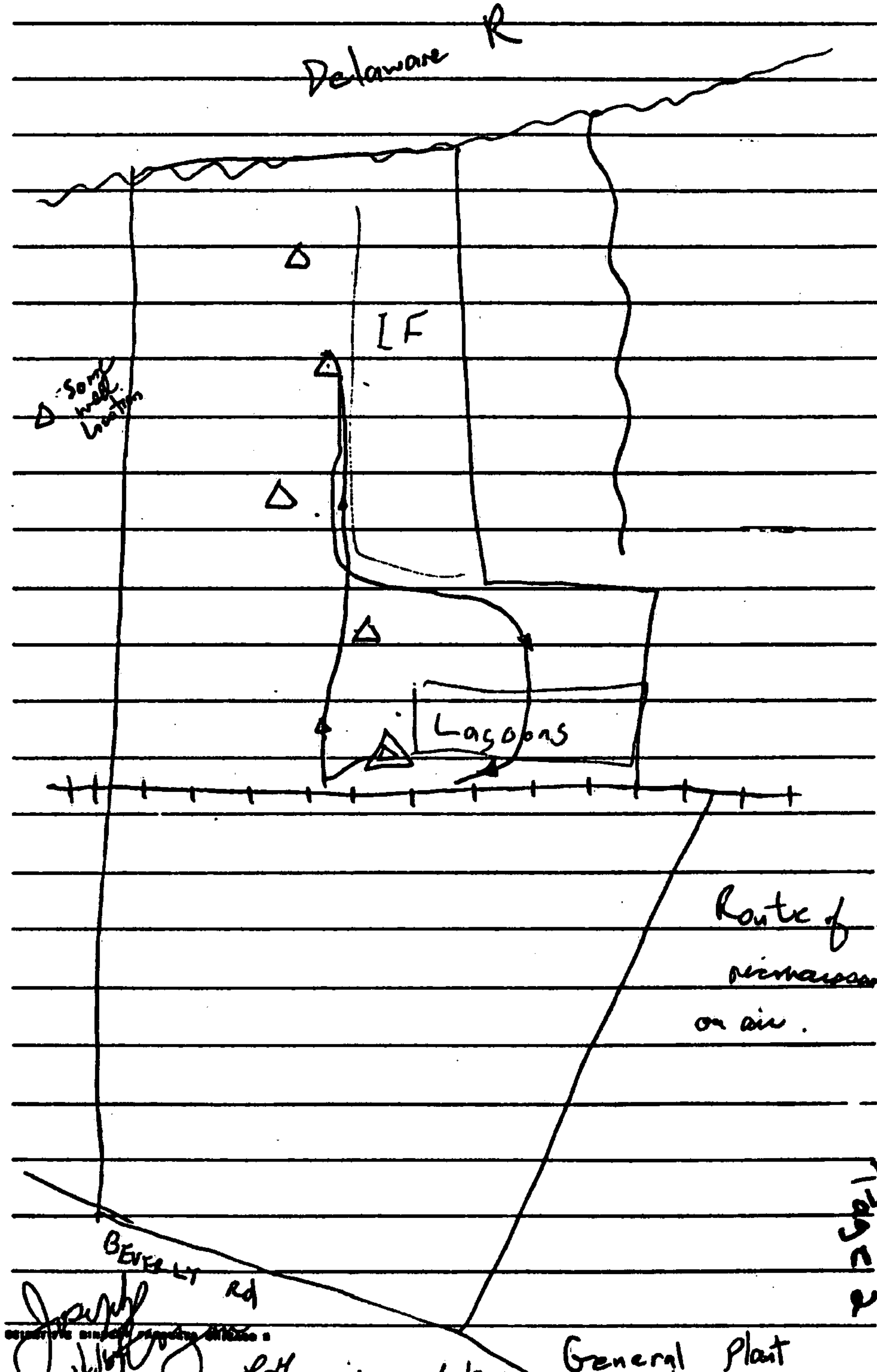
0042-F

02-8412-15/NJH9

Page 1

SCIENTIFIC BINDERY PRODUCTS CHICAGO 5

6



General Plant Sketch.

S. Sneiderman 1/11/85

Page 2

Page 2

Arrived at 9:30.

Met with Fred Kanzler, who escorted us thru the plant

NJPDES - NJ0004391
DSW effective date 12-1-84
DGW Draft (still in process)

USEPA ID - NJD001890185

Sampling with Garrety & Miller - samplers for Tenneco
Jan 17

owner - operator Tenneco Polymers Inc
1010 Milam
PO Box 2511
Houston, TX 77001

Monitoring wells put in under state requirement for surface impoundments (Not under RCRA)

Joseph [illegible]
1/9/85

[illegible] 1/11/85

Page 3

IWMF status with state, but seeking to
change to generator only.
(part of discharge to GW. permit)

Received copy of Air permits #
" " Site plan.
" well locations

Sludge lagoons being taken out of service

Discharge outfalls: Only 001 - Process plant treated WWT.
002 - storm pond
003 - CT

Landfill will be closed March 1

All wells - 30' deep
2" wells steel, SS screen

Prod well #2, Put on standby
#1, Pumped to produce cone of
depression
#3 out of service

Joseph [illegible] L Friedling 1/11/85

Prod well #5 on stand by
4, 5, 9, 7, 10

Iron problem in water.

School closed - property owned by Tenneco

Production - 90 - 100' deep.

Recharge area for Magothy - Raritan.

Purchased by 1961 - Cary Chemical PVCl
1965 - Tenneco Chemicals PVCl

Before Cary, no industrial production.
orchards, etc.

- No Response Activities

- AETC
Flanders, NJ

Haz was Transp

Advanced Technology corp
(under RCRA) Toms River, NJ.

Joseph [illegible] 1/11/85

[illegible] 1/11/85

Sew Waste, Kearny after 1983. 12

— Lab techiques - for sediments.
get Lab analysis Technique No.'s
For Tenneco

1032 arrived at RR crossing
set up HNu, OVA
dressed into saranex
used one Drager sample chloride tube
0.5/a

No reading on Vinyl Cl drager
at Base (CP)

1050

Joseph Rogan 1/11/85 [signature] 1/11/85

Page 6

— Recon

1103 — on Air - J. Logan & L. Darragh.

→ Luke noticed odor in air tank, briefly
not oil. # 192063 SCBA

Brief excursion on OVA only near working
Face of LF, not duplicated.
No similar reading by HNU

Well # 17 - opened - no HNU or OVA
readings

Went to lagoons, no reading. 1 of 3
empty & 1 in use.

No OVA or HNU Readings
1126 off air

Joseph [illegible] 1/11/85 L Gneiding 1/11/85

14

2nd ~~Run~~ Reem, two air signed

1132

Slight breeze from West

1147:

No + responses on
DRAGER NEAR Top of
working edge of fill

OVA pick-up 5-6 above
background in holes at
edge of Fill

At "head" level
occasional 1-2 ppm above
background.

No hNu readings

No hNu or OVA readings anywhere else

Joseph Rizzo 7/11/85 L Sneiderman 7/11/85

Page 8

At foot of working edge,
no readings on
any instrument

Monitoring wells installed
Nov. about 82. jmh

In close to lagoon - 1-2 ppm on
~~HNu~~ jmh, @ OVA; none on
HNu

EPA bioassay Jan 1981
Edison

Plant WWT - Primary clarifier
~~jmh~~ Secondary Biological

1157. Returned to Base.

Joseph [illegible] 1/11/85 [illegible] 1/11/85

TENNECO CHEMICALS
PROJECT MANAGER: JOE LOGAN
TDD #02-8412-15
FIELD NOTEBOOK 1084
JANUARY 3, 1985

Page 10

0049-F
02-8412-15/NJH9

Tenneco Chemicals Inc

Burlington TWP, NJ

1/17/85

02-8412-15

EPA Case # 3805

NUS Personnel

Joe Logan - Project Manager, Field, photo documentation

Diane Werbin Tribe - SSO

Glenn Deperman ~~Mike Nicholas~~ JL - Sampler

Gary Rojek - Sampler.

Debbie LaMond - SMO

Weather: 30's, snowing, 1" on ground

Joseph Logan 1/16/85 Laurie Griesling 1/22/85

Wells	Depth (from surface), ft
#5	27
#9	22.5
#15	25
#17	32

[illegible] 1/[illegible]/85

[illegible] 1/21/85

8

0930 - arrived on site
G & M not here yet
will prepare bottles in
the mean time

1037 Set up C.P.
dressed
TOOK
Glassware - From Tenneco
8-OZ amber glass for soils
& extra 8-OZ glass jars

Costa
Tim

307169 - Gary SCBA
191312 - Glenn SCBA

1107 on air
NJ H9-S-1 & split 3 8oz
Slide 1 Facing East
Print 1
No reading
2" below surface

OFF AIR 1114
Sampler G-Bayermann

Joseph Hogan
1/10/85

L Greiding 1/21/84

Page 13

π: 20 [illegible] Miller [illegible]
B. Carpenter; B. Shantz

1128 NJH9-S-2 & split
No Readings on OVA 3-8-02

Slide ~~#~~ 2 Facing Northeast
Print ~~#~~ 2

Auger refusal -
sampled 6-12" deep

1153 Prepared for well # 17
NJH9-W-1
1153 NJH9-S-2 & NJH9 S1
splits Handed over
to G&M.

Well #17
1203 - Water level measmt
220 ~~22A~~ ~~76.1~~ 1.61
~~-76.1~~
~~5.9~~ 20.39

32' deep
1.8 = pipe stand height

1/14/85 1/21/85

Page 14

19

20.39

\- -1.8

18.69 ~~Feet of H_2O~~ DWT 1/17

depth to H_2O from GS

32.0' well depth from GS

\- 18.69

13.31 feet of H_2O well #17

Wells pumped by G&M

\- Teflon Hose

\- cent. pump

\- polar water primer

Water cloudy at first

cleared up later

Volumes pumped: 4 gal

4 gal

+3 gal

11 gal

NJH9-

12:19 GW-1

Print · 3 Facing West

Slide -3

Laurie Friedling 1/21/85

~~Sampling w/ peristaltic pump~~
~~- Tubing changed each time~~

P. Pump didn't
First sample with Bailer

12:50 Time of sampling
~~First sample~~ .
First Bail is cloudy

Well #5
18.35 Depth to water from Top Casing
1.81 Casing ht
16.54
-.09
16.45

~~25~~ 41.0' deep
16.45
10.55 feet
+ 2
10.55

1:53 Well #15

$19' - 2.21' = 16.79$
$= H_2O$ to top

Dpt = 26.2 to case top

Δ .07' dis ?at

stickup = 1.56'

16. 26.20
- 1.56
24.64
- 16.79
7.85
= 4 gal to [illegible]

Well #5 4 gal removed
4 gal removed.
8 gal

Joseph [illegible] 1/18/85

[illegible] 1/21/85

Page 17

Well #5 NJH9-W-2

~~8~~ SLIDE 4 Facing Southeast
1409 PRINT 4
~~start~~ sample. GR

1413 #15 evacuated
8 gal removed

~~302~~ Print # 5 Facing Southeast
1502 Slide # 5
NJH9-W-3 - well #15
Sampler - GB

~~300~~. Attempt sample lagoon (J. Logan G Fusek only)
1500 2-5 ppm above
background will go on
air after NJH9-W-4

G&M Personnel
Dave Schantz
Bruce Carpenter.

Joseph ... [illegible]

L. Gneeding
1/21/85

Page 18

NJH9 ~~$~~ W-5
Lagoon

Gary on Air 4:00

Sampled at 409
Split with Tenneco.

Print 6 } of bottles
Slide 6

Gary off air - 413
Sample From ~~[illegible]~~ North-east corner of lagoon.
VOA's taken from
organics ~~Bottle Inorganic~~ Bottle.
JWK

Sampler GR

~~4:44~~ 1644 NJH9-W-4
WELL # 9

Slide 7 } of bottles
Print 7

* Details see Page 18

[illegible signature]

[illegible] 1/21/85 SAMPLE OUT

Page 19

Well #9 ~~[illegible]~~

depth of well 23.62

depth to H_2O for top of

Casing 4.79

Stick up 1.63

H_2O colum 23.62

−13.16

10.46

8 gal evacuated

*see back of stapled Frontsheet

[illegible signature]

SCIENTIFIC BINDERY PRODUCTS, CHICAGO

R C Arneding 1/21/85

Well #4 (well 9)

depth of well 23.62

depth to H_2O from TOC 14.79

stickup 1.63

H_2O column

	23.62
	13.16
	10.46

~~Well #4~~

~~stickup 1.63~~

~~depth to H_2O from TOC 14.79~~

~~depth of well 23.62~~

16 - 1.21

14.79

Photo Log

all taken by J. Logan on 1/17/85

#; Print & slide	Description	time
1	NJH9-S-1	1109
2	NJH9-S-2	1128
3	NJH9-W-1 (Well #17)	~~1153~~ 1219
4	NJH9-W-2 (Well #5)	1409
5	NJH9-W-3 (Well #15)	1500
6	NJH9-W-5 (Lagoon)	1605
7	NJH9-W-4 (Well #9)	1644

Sample Log

All samples 1/17/85
All split with Tenneco

Sample #	time	Traffic Report #s Organic Inorganic	Description	Page
NJH9-S1	1109	BA460 MBA700	Work face of LF	8
NJH9-S-2	1128	BA469 MBA701	old section of LF	9
NJH9-W-1	1219	BA462 MBA774	Well #17	9, 10
NJH9-W-2	1409	BA463 MBA775	Well #5	11, 12, 13
NJH9-W-3	1500	BA464 MBA776	Well# 15	12, 13
NJH9-W-4	~~1605~~ 1644	BA465 MBA777	Well #9	14, 18

(Con't)

Sample log (Continued)

#	Time		Description	Page
NJH9-W-5	~~1644~~ JWH 1605	BA466 MBA778	Lagoon	14
NJH9-W-6	N/A	BA468 MBA779	Blank	6
NJH9-S-3	N/A	BA470 MBA782	Blank	6

Page 24

1/18/95

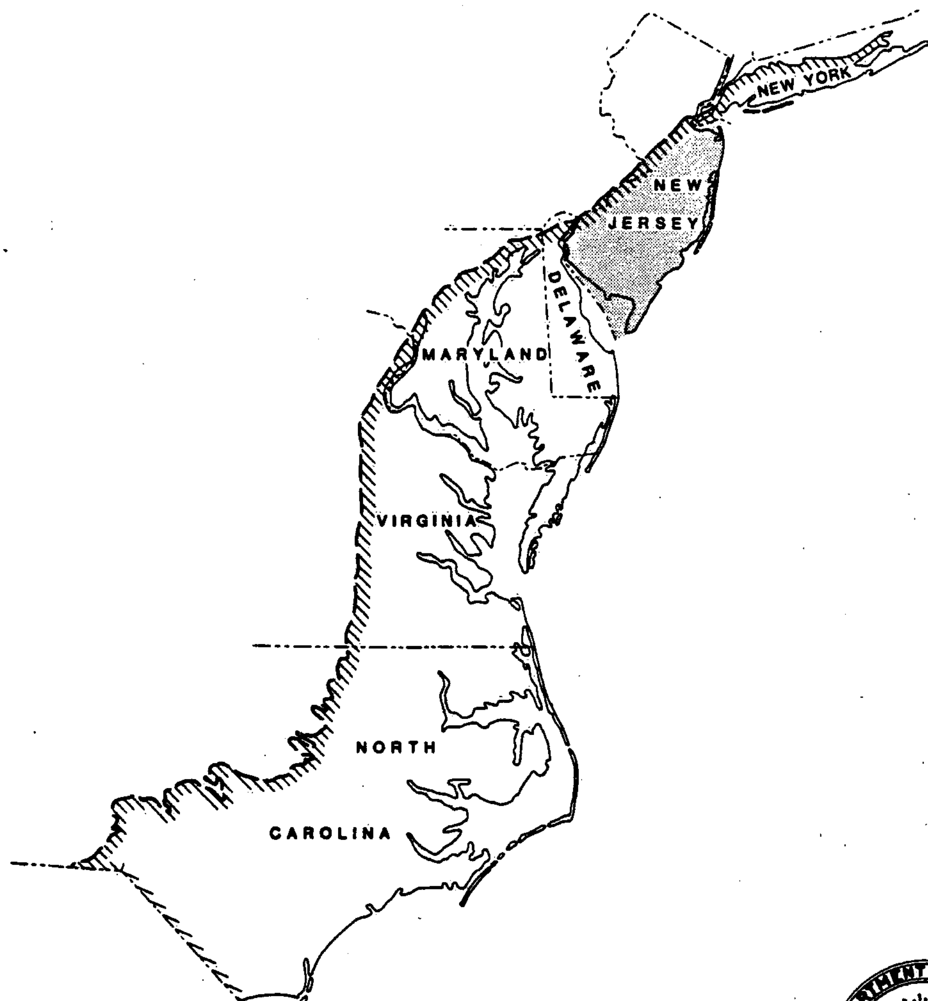
REFERENCE #2

Page 1

HYDROGEOLOGIC FRAMEWORK OF THE NEW JERSEY COASTAL PLAIN

REGIONAL AQUIFER-SYSTEM ANALYSIS

U.S. GEOLOGICAL SURVEY
Open-File Report 84-730



Page 2

HYDROGEOLOGIC FRAMEWORK OF THE NEW JERSEY COASTAL PLAIN

By Otto S. Zapecza

Open-File Report 84-730

Trenton, New Jersey
1984

Page 3

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to:

U.S. Geological Survey
District Chief
Room 409, Federal Building
402 East State Street
Trenton, New Jersey 08608

Copies of this report can be purchased from:

Open-File Services Section
Western Distribution Branch
U.S. Geological Survey
Box 25425, Federal Center
Denver, Colorado 80225
(Telephone: [303] 236-7476)

Page 4

Table 2.--Geologic and hydrogeologic units in the Coastal Plain of New Jersey.

SYSTEM	SERIES	GEOLOGIC UNIT	LITHOLOGY	HYDROGEOLOGIC UNIT	HYDROLOGIC CHARACTERISTICS
Quaternary	Holocene	Alluvial deposits	Sand, silt, and black mud.	Undifferentiated	Surficial material, often hydraulically connected to underlying aquifers. Locally some units may act as confining beds. Thicker sands are capable of yielding large quantities of water.
		Beach sand and gravel	Sand, quartz, light-colored, medium- to coarse-grained, pebbly.		
	Pleistocene	Cape May Formation	Sand, quartz, light-colored, heterogeneous, clayey, pebbly.		
Tertiary	Miocene	Pensauken Formation			
		Bridgeton Formation		Kirkwood-Cohansey aquifer system	A major aquifer system. Ground-water occurs generally under water-table conditions. In Cape May County the Cohansey Sand is under artesian conditions.
		Beacon Hill Gravel	Gravel, quartz, light colored, sandy.		
		Cohansey Sand	Sand, quartz, light-colored, medium to coarse-grained, pebbly; local clay beds.		
		Kirkwood Formation	Sand, quartz, gray and tan, very fine- to medium-grained, micaceous, and dark-colored diatomaceous clay.	confining bed ------ 1 Rio Grande w-bz ------ 2 confining bed	Thick diatomaceous clay bed occurs along coast and for a short distance inland. A thin water-bearing sand occurs within the middle of this unit.
				Atlantic City 800-foot sand	A major aquifer along the coast.
				Composite confining bed	Alloway Clay member or equivalent
	Eocene	Piney Point Formation	Sand, quartz and glauconite, fine- to coarse-grained.	Piney Point aquifer	Yields moderate quantities of water locally.
		Shark River Formation	Clay, silty and sandy, glauconitic, green, gray and brown, fined-grained quartz sand.		Poorly permeable sediments.
		Manasquan Formation			
	Paleocene	Vincentown Formation	Sand, quartz, gray and green, fine- to coarse-grained, glauconitic, and brown clayey, very fossiliferous, glauconite and quartz calcarenite.	Vincentown aquifer	Yields small to moderate quantities of water in and near its outcrop area.
		Hornerstown Sand	Sand, clayey, glauconitic, dark green, fine- to coarse-grained.		Poorly permeable sediments.
Cretaceous	Upper Cretaceous	Tinton Sand	Sand, quartz, and glauconite, brown and gray, fine- to coarse-grained, clayey, micaceous.		
		Red Bank Sand		------ 2 Red Bank sand ------	Yields small quantities of water in and near its outcrop area.
		Navesink Formation	'Sand, clayey, silty, glauconitic, green and black, medium- to coarse-grained.		Poorly permeable sediments.
		Mount Laurel Sand	Sand, quartz, brown and gray, fine- to coarse-grained, slightly glauconitic.	Wenonah-Mount Laurel aquifer	A major aquifer.
		Wenonah Formation	Sand, very fine- to fine-grained, gray and brown, silty, slightly glauconitic.		
		Marshalltown Formation	Clay, silty, dark greenish gray; glauconitic quartz sand.	Marshalltown-Wenonah confining bed	A leaky confining bed.
		Englishtown Formation	Sand, quartz, tan and gray, fine- to medium-grained; local clay beds.	Englishtown aquifer system	A major aquifer. Two sand units in Monmouth and Ocean Counties.
		Woodbury Clay	Clay, gray and black, micaceous silt.	Merchantville-Woodbury confining bed	A major confining bed. Locally the Merchantville Fm. may contain a thin water-bearing sand.
		Merchantville Formation	Clay, glauconitic, micaceous, gray and black; locally very fine-grained quartz and glauconitic sand.		
		Magothy Formation	Sand, quartz, light-gray, fine- to coarse-grained; local beds of dark-gray lignitic clay.	Potomac-Raritan-Magothy aquifer system: upper aquifer	A major aquifer system. In the northern Coastal Plain the upper aquifer is equivalent to the Old Bridge aquifer and the middle aquifer is the equivalent of the Farrington aquifer. In the Dela. River Valley three aquifers are recognized. In the deeper subsurface, units below the upper aquifer are undifferentiated.
		Raritan Formation	Sand, quartz, light-gray, fine- to coarse-grained, pebbly, arkosic, red, white, and variegated clay.	conf bd middle aquifer	
	Lower Cretaceous	Potomac Group	Alternating clay, silt, sand, and gravel.	conf bd lower aquifer	
Pre- Cretaceous		Bedrock	Precambrian and lower Paleozoic crystalline rocks, metamorphic schist and gneiss; locally Triassic basalt, sandstone and shale.	Bedrock confining bed	No wells obtain water from these consolidated rocks, except along Fall Line.

1 Rio Grande water-bearing zone.

2 ------ Minor aquifer not mapped in this report.

Modified from Seaber, 1965, table 3.

be noted that the outcrop areas shown on the structure contour and thickness maps can not be considered the outcrop areas for these hydrogeologic units. The outcrop areas , however, can generally be used to estimate updip limits of aquifers and confining beds, and to approximate lines of zero thickness.

Information on the wells used to construct the framework is shown in table 3 which is attached to the back of the report. The information for each well includes the U.S. Geological Survey well number, latitude, longitude, local well identifier, municipality, and the total depth logged. If a geophysical log of the well appears in a hydrogeologic section, the name of the section is given in the last column.

The location of the wells listed in table 3 and the lines of the hydrogeologic sections shown on plates 3, 4, and 5 are shown on plate 2. The hydrogeologic sections shown on plates 3, 4, and 5 are referenced throughout the section on Aquifers and Confining Beds.

The hydrogeologic control data for each site are listed in table 4 which is attached to the back of the report. Table 4 contains the U.S. Geological Survey well number, the altitude of land surface, and the top and bottom of each aquifer unit penetrated in each well. This table facilitates a rapid view of the hydrogeologic section at any site and is useful for calculating thicknesses if alternative divisions of hydrogeologic units are required.

Aquifers and Confining Beds

Potomac-Raritan-Magothy Aquifer System

In New Jersey, sediments of the Cretaceous Potomac Group, Raritan, and Magothy Formations have generally been combined and described as a single hydrologic unit (Barksdale and others, 1958, p. 92) or as an aquifer system (Gill and Farlekas, 1976 and Luzier, 1980). This approach has been widely used because the individual formations are lithologically indistinguishable from one another over large areas of the Coastal Plain. In addition to the problems encountered in differentiating these sediments, Barksdale and others (1958, p. 91) considered the major aquifers within these units to be interconnected over some distance, although in many areas they were locally distinct.

In the outcrop area of the Raritan and Magothy Formations near Raritan Bay, nine distinct units have been recognized (fig. 3). The lithologic subdivision of the Raritan Formation reported by Ries and others (1904) was modified by Berry (1906) and by Barksdale and others (1943, p. 18). These early reports included the Old Bridge Sand Member and the Amboy Stoneware Clay Member as part of the Raritan Formation. Owens and others (1968) redefined the Magothy Formation and, based on unpublished palynological work by Wolfe and Pakiser, included the Amboy Stoneware Clay member as part of the Magothy along with the Morgan beds and the Cliffwood beds. Subsequently Wolfe and Pakiser (1971, p. B41) reassigned the Old Bridge Sand Member as the basal member of the Magothy Formation. Based on spore and pollen analysis and on interpretations of borehole geophysical and lithologic logs, Perry and others (1975, p. 1542) have traced the individual members of the Raritan and Magothy Formations into the deeper subsurface of Monmouth and Ocean Counties (fig. 4).

In the northern Coastal Plain, in parts of Mercer, Middlesex, and Monmouth Counties, two major aquifers have previously been defined within the Potomac-Raritan-Magothy aquifer system: the Farrington aquifer and the Old Bridge aquifer (Barksdale and 1943; and Farlekas, 1979). The Farrington aquifer is composed primarily of the Farrington Sand Member of the Raritan Formation, and the Old Bridge aquifer is composed mainly of the Old Bridge Sand Member of the Magothy Formation.

In the southern Coastal Plain of New Jersey, water-bearing zones within the Potomac Group, Raritan, and Magothy Formations have generally been considered to function together as one hydrologic unit. The lithologic subdivisions of the Raritan and Magothy Formations recognized in the Raritan embayment are not evident in their outcrop area near the Delaware River (Owens and Sohl, 1969, p. 239-242). However, in an intensive study of the Potomac-Raritan-Magothy aquifer system in the Delaware Valley between Trenton and the Delaware Bay, Gill and Farlekas (written communication, 1970) subdivided the aquifer system into three aquifers, designated lower, middle, and upper, and two interjacent confining layers on the basis of geologic and geophysical well logs. Farlekas and others (1976) also show a three-aquifer breakdown of the system in Camden County.

Within the Potomac-Raritan-Magothy aquifer system, five mappable hydrologic units of varying extent are defined in this report. The five units include three aquifers, designated lower, middle, and upper, based on stratigraphic position within the system, and two confining beds that lie interjacent to the aquifers.

Lower aquifer

The altitude of the top of the lower aquifer and its thickness are shown on Plate 6. The lower aquifer has the most limited extent of the three aquifers within the Potomac-Raritan-Magothy aquifer system. It lies on the bedrock or weathered bedrock surface from northwestern Burlington to Salem Counties and is recognizable in the subsurface for approximately 8 to 12 mi downdip from the northwestern extent of the undifferentiated outcrop area of the Potomac Group and Raritan Formation. In the updip direction, the aquifer thins and wedges out as successively younger beds overlap the bedrock surface (section G-G', pl. 4). To the north, the lower aquifer thins and wedges out against a local basement high in the vicinity of Mount Holly in Burlington County (section I-B, pl. 4). In the downdip direction, the thickness of the lower aquifer increases uniformly southeastward to greater than 250 ft.

The aquifer thicknesses shown on plate 6 reflect the total thickness of the unit. Because of the fluvial depositional history of the Potomac and Raritan sediments in this area, considerable amounts of silt and clay are locally interbedded with the sand and gravel of the lower aquifer. Therefore, percentages of sand estimated from geophysical logs are also indicated on the thickness map for the lower aquifer. Sand usually makes up more than 70 percent of the lower aquifer. Silt and clay beds within the lower aquifer are most prominent in Salem County. The lower aquifer in Salem County is similar and probably equivalent to the lower hydrologic zone of the Potomac Formation described by Sundstrom and others (1967, p. 18) within New Castle County, Delaware, located across the Delaware River adjacent to Salem County.

Southeast of the area contoured on plate 6, very few wells have penetrated the lower section of the Potomac-Raritan-Magothy aquifer system. Hence, the lower aquifer cannot be differentiated from overlying and underlying units in the deeper subsurface on the basis of the available geophysical data (section H-H', pl. 4).

The lower aquifer is utilized for water supply primarily in northwestern Gloucester County, northwestern Camden County, and adjoining northwestern Burlington County. In southwestern Gloucester county and Salem County, use of the lower aquifer is limited owing to higher chloride concentrations (Luzier, 1980, fig. 2; Fusillo and Voronin, 1981, table 3).

Confining bed between the lower and middle aquifers

The confining bed overlying the lower aquifer of the Potomac-Raritan-Magothy aquifer system is composed primarily of very fine grained silt and clay sediments of the Potomac Group and Raritan Formation. The thickness of the confining bed between the lower and middle aquifers is shown on plate 6. On geophysical logs, the confining bed is recognizable in the subsurface over approximately the same area as the lower aquifer, from southern Burlington County to Salem County and within 12 mi of the outcrop area of the Potomac Group and Raritan Formation. This confining bed is less than 50 ft thick over half its mappable extent. Confining-bed thicknesses generally increase downdip toward the east. However, the thickening of this unit is not uniform because of local lensing between silt, sand, and clay, especially in Camden and Gloucester Counties. The confining bed exceeds 100 ft in thickness in downdip areas.

Middle aquifer

The mappable extent of the top of the middle aquifer is shown on plate 7. The middle aquifer extends from the Delaware River adjacent to Salem County to Raritan Bay in the northeastern

Coastal Plain. Between Salem County and northern Burlington County, the middle aquifer has been traced in the subsurface within a 10- to 12-mi band that parallels the outcrop area. In the uncontoured areas downdip, the middle aquifer, like the lower aquifer, cannot be distinguished from other beds within the Potomac Group and Raritan Formation.

Northeast of Burlington County, the middle aquifer is the equivalent of the Farrington aquifer described by Farlekas (1979). Hydrogeologic section I-B (pl. 4) shows the lateral continuity of the middle aquifer near the Delaware River and the Farrington aquifer recognized in the northeastern Coastal Plain. In the northeastern Coastal Plain the top of the middle aquifer is persistent in the deeper subsurface of Monmouth and northern Ocean Counties (hydrogeologic sections, pl. 3).

Aquifer thickness and percentages of sand of the middle aquifer are shown on plate 8. In the northern Coastal Plain, the thickness of the middle aquifer ranges from less than 50 ft in and near the outcrop to more than 150 ft near the junction of Mercer, Middlesex, and Monmouth Counties. Although the top of the middle aquifer can be traced into northern Ocean County, it is not possible, relying solely on geophysical data, to separate it from underlying sediments within the Potomac-Raritan-Magothy aquifer system. Therefore, thickness contours have not been extended farther downdip into Monmouth and Ocean Counties.

The predominantly sandy nature of the undifferentiated sediments between the bedrock surface and the top of the middle aquifer in northern Ocean County is evident from the geophysical logs on sections D-D' (pl. 3) and K-C' (pl. 5). This undifferentiated zone within the Potomac-Raritan-Magothy aquifer system has become important in recent years. A number of large production public-supply wells in northern Ocean County are equipped with multiple screens so as to tap sandy beds in this zone. More detailed studies are needed to show what effect heavy ground-water withdrawals from this zone may have on updip differentiated aquifers within the Potomac-Raritan-Magothy aquifer system.

Between Salem and Burlington Counties near the Delaware River, percentages of sand and aquifer thicknesses of the middle aquifer are more variable over shorter distances than in the northeastern Coastal Plain of New Jersey where sand generally ranges from 75 to 85 percent. In and near the outcrop area near the Delaware River, sand ranges from 60 to 100 percent. In this area, lithologic variability and abrupt changes in thickness of individual sand and clay beds within the unit are common.

In the Delaware Valley, the most productive and developed areas for ground-water withdrawals from the middle aquifer are located between northwestern Burlington and northwestern Gloucester Counties. As in the lower aquifer, discontinuous silt and clay beds are common within the middle aquifer in Salem County.

Confining bed between the middle and upper aquifers

The confining bed thickness between the middle and upper aquifers of the aquifer system is shown on plate 9. In the northeastern Coastal Plain of New Jersey this confining bed is equivalent primarily to the Woodbridge Clay Member of the Raritan Formation. The Woodbridge Clay is a thin- to thick-bedded sequence of micaceous silts and clays (Owens and Sohl, 1969, p. 239). Locally, the confining bed may also include the clayey lithofacies of the Sayreville Sand Member and the South Amboy Fire Clay Member, both of the Raritan Formation (Farlekas, 1979, p. 16). In the downdip areas of Burlington, Ocean, and Monmouth Counties, this confining bed may be the equivalent of the Bass River Formation proposed by Petters (1976).

Thickness of the confining bed generally increases from around 50 ft in and near the outcrop to more than 150 ft toward the southeast, with some local thicknesses in excess of 200 ft. However, locally in northern Gloucester and Camden Counties near the Delaware River, the confining bed between the middle and upper aquifers is less than 20 ft thick.

Upper aquifer

The upper aquifer is the most extensive unit of the Potomac-Raritan-Magothy aquifer system, and it coincides most closely with a single geologic unit, the Magothy Formation. It is recognizable on geophysical logs that penetrate the section throughout the Coastal Plain of New Jersey (pls. 3, 4, and 5).

The altitude of the top and the thickness of the upper aquifer are shown on plates 10 and 11, respectively. In the northeastern Coastal Plain the upper aquifer is the equivalent primarily of the Old Bridge Sand Member of the Magothy Formation. Locally the aquifer also includes the Sayreville Sand Member of the Raritan Formation, where the South Amboy Fire Clay Member is thin or missing (Farlekas, 1979, p. 22). The upper aquifer decreases in thickness from greater than 200 ft in the northeastern Coastal Plain to approximately 50 ft in Cape May County. It is composed predominately of permeable coarse-grained sediments. Clay beds are generally thin and localized. Therefore, percentages of sand are not included on the thickness map for the upper aquifer.

In the Raritan embayment the Magothy Formation thickens rapidly and includes the interbedded sand, silt, and clay sequences of the Cliffwood and Morgan beds (Perry and others 1975, p. 1543). These beds are recognized only locally in outcrop and in the subsurface of the Sandy Hook Bay area. Perry and others (1975, fig. 11) show that downdip the Cliffwood and Morgan beds interfinger and pinch out within the Merchantville Formation and Woodbury Clay (fig. 4). The top of the upper aquifer in the Sandy Hook area, as mapped in this report (pl. 10), is the top of the Old Bridge Sand Member of the Magothy Formation. Therefore, the

Table 3.--Record of wells used to construct the hydrogeologic framework of the New Jersey Coastal Plain--Continued.

Well number	Location: Latitude	Location: Longitude	Local well identifier	Municipality	Total depth logged (feet)	Hydrogeologic section (see plate 2)
5-293	400021	744737	ACME FOOD STORE 1	MOUNT HOLLY TWP	424	
5-303	395607	745648	MOUNT LAUREL MUA 1	MOUNT LAUREL TWP	593	
5-332	400106	743720	US ARMY FORT DIX 5	NEW HANOVER TWP	1133	
5-334	400138	743753	US ARMY FORT DIX 3	NEW HANOVER TWP	852	
5-340	400300	743514	US AIR FORCE MCGUIRE B	NORTH HANOVER TWP	1008	
5-344	400546	743446	HOFFMAN-LAROCHE 1974 WELL	NORTH HANOVER TWP	891	
5-368	395755	743239	PEMBERTON TWP WD 7	PEMBERTON TWP	368	
5-378	395815	743840	BURLINGTON CO INST 5	PEMBERTON TWP	420	
5-385	395839	744249	IONAC CHEM CORP 5	PEMBERTON TWP	840	
5-388	395939	743742	US ARMY FORT DIX 6	PEMBERTON TWP	1140	F-F',J-J'
5-417	394608	744054	STATE OF NJ MULICA 10D	SHAMONG TWP	244	
5-436	400118	744010	HELIS, WM G STOCK FARM 1	SPRINGFIELD TWP	657	
5-440	400242	744223	RHODIA CORP 1	SPRINGFIELD TWP	634	F-F',I-B
5-448	400355	744809	STATE OF NJ 1-REST AREA	SPRINGFIELD TWP	211	
5-451	394536	743542	STATE OF NJ MULLICA 5D	TABERNACLE TWP	216	
5-454	394812	744031	STATE OF NJ MULLICA 3D	TABERNACLE TWP	224	
5-464	395114	744542	AMOS ALLEN PARK 1	TABERNACLE TWP	382	
5-465	395123	743835	TRANSCONTINENTAL GAS TH 9	TABERNACLE TWP	852	
5-485	393832	743608	STATE OF NJ MULLICA 12D	WASHINGTON TWP	370	
5-488	393844	743855	STATE OF NJ BATSTO 2	WASHINGTON TWP	546	
5-598	394223	744153	STATE OF NJ MULLICA 11D	WASHINGTON TWP	209	
5-608	394300	743830	STATE OF NJ MULLICA 4D	WASHINGTON TWP	314	
5-612	394305	743357	STATE OF NJ MULLICA 13D	WASHINGTON TWP	303	
5-635	400041	745049	INDUCTOTHERM 1	WESTAMPTON TWP	436	
5-644	400005	745237	WILLINGBORO MUA DCB 12	WILLINGBORO TWP	524	G-G'
5-648	400103	745409	WILLINGBORO MUA 3-OBS	WILLINGBORO TWP	315	
c → 5-658	400158	745307	WILLINGBORO MUA 7	WILLINGBORO TWP	304	G-G'
d → 5-668	400308	745325	WILLINGBORO MUA DCB 28	WILLINGBORO TWP	240	
5-672	394558	742950	TRANSCONTINENTAL GAS TH 13	WOODLAND TWP	1513	
5-676	394914	742544	USGS COYLE AIRPORT	WOODLAND TWP	590	F-F',L-L'
5-678	394940	743143	STATE OF NJ MULLICA 8S	WOODLAND TWP	225	
5-681	395019	743106	TRANSCONTINENTAL GAS TH 1	WOODLAND TWP	1147	
5-683	395122	743017	USGS BUTLER PLACE 1	WOODLAND TWP	2275	F-F'
5-691	395210	743726	TRANSCONTINENTAL GAS TH 11	WOODLAND TWP	949	
5-695	395328	743720	SUNNY PINES CONSTRUCTION TH 1-74	WOODLAND TWP	546	

c & d match wells c & d in Ref. 5, pages 8-10

Page 10

Table 3.--Record of wells used to construct the hydrogeologic framework of the New Jersey Coastal Plain--Continued.

Well number	Location Latitude	Location Longitude	Local well identifier	Municipality	Total depth logged (feet)	Hydrogeologic section (see plate 2)
5-696	395330	742946	TRANSCONTINENTAL GAS TH 5	WOODLAND TWP	897	
5-697	395351	743048	TRANSCONTINENTAL GAS TH 6	WOODLAND TWP	900	
5-699	395442	742950	TRANSCONTINENTAL GAS TH 7	WOODLAND TWP	908	
5-724	395413	744231	HAMPTON LAKE WC 3	SOUTHAMPTON TWP	366	
5-737	395749	743448	JENKINS & SONS 1961 WELL	PEMBERTON TWP	284	
5-739	400150	744820	BURL CO COUNTRY CLUB 2-1966	WESTAMPTON TWP	314	
5-741	400218	744604	LAUREL OAKS ENT 1-1973	SPRINGFIELD TWP	285	
5-752	395247	745157	EVESHAM MUA TH 13	EVESHAM TWP	510	J-J'
9 5-767	400420	745245	TENNECO CHEM TH 4	BURLINGTON TWP	162	G-G'
7- 8	395148	750542	BELLMAWR BORO WD 4	BELLMAWR BORO	588	
7- 19	395146	745614	BERLIN WD 10	BERLIN BORO	785	
7- 78	395616	750632	CAMDEN CITY WD CITY 5N	CAMDEN CITY	183	
7-117	395229	745712	NJ WATER COMPANY HUTTON HILL 1	CHERRY HILL TWP	602	
7-121	395252	745943	NJ WATER COMPANY BROWNING TH 1	CHERRY HILL TWP	819	
7-130	395353	745708	NJ WATER COMPANY OLD ORCHARD A	CHERRY HILL TWP	801	I-B
7-146	395455	745924	NJ WATER COMPANY KINGSTON 27	CHERRY HILL TWP	540	
7-163	395609	750028	NJ WATER COMPANY COLUMBIA 22	CHERRY HILL TWP	463	
7-170	394832	745915	CLEMENTON WD ABANDON WELL	CLEMENTON BORO	172	
7-172	395426	750514	COLLINGSWOOD WD 6	COLLINGSWOOD BORO	334	
7-184	394950	745855	NJ WATER COMPANY GIBBSBORO OBS 1	GIBBSBORO BORO	1160	
7-221	395356	750738	USGS COAST GUARD 1	GLOUCESTER CITY	254	
7-228	394556	745835	CAMDEN CO BD ED VOC&TECH HS 1	GLOUCESTER TWP	471	
7-251	394759	750158	GARDEN STATE WC TH 1	GLOUCESTER TWP	518	
7-257	394829	750347	SUN TEMP INDUST	GLOUCESTER TWP	388	
7-278	395238	750316	NJ WATER COMPANY HADDON 15	HADDON HEIGHTS BORO	596	
7-283	395246	750433	NJ WATER COMPANY EGBERT OBS	HADDON HEIGHTS BORO	462	
7-299	395322	750154	HADDONFIELD WD LAYNE 2	HADDONFIELD BORO	620	
7-303	395404	750202	HADDONFIELD WD TH 1965	HADDONFIELD BORO	551	H-H'
7-317	395134	750251	OWENS CORNING TH 2	MAGNOLIA BORO	675	H-H',I-B
7-320	395652	750307	MCHVIL PNSK WCM WOODBINE 1	MERCHANTVILLE BORO	283	H-H'
7-363	395842	750312	CAMDEN CITY WD PUCHACK 2	PENNSAUKEN TWP	158	
7-392	394641	745909	PINE HILL MUA 1	PINE HILL BORO	715	
7-412	394922	745630	NJ WATER COMPANY ELM TREE 2	VOORHEES TWP	1356	H-H'
7-430	394204	744921	STATE OF NJ MULLICA 7D	WATERFORD TWP	270	
7-451	394628	744923	STATE OF NJ MULLICA 1D	WATERFORD TWP	225	

9 matches well 9 in Ref. 5, pages 11-13

Page 11

Table 4.--Altitudes of top and base of hydrogeologic units--Continued.
[In feet above or below sea level]

Well number	Altitude of land surface	Kirkwood-Cohansey aquifer system Base	Atlantic City 800-foot sand Top	Atlantic City 800-foot sand Base	Piney Point aquifer Top	Piney Point aquifer Base	Vincentown aquifer Top	Vincentown aquifer Base	Wenonah-Mount Laurel aquifer Top	Wenonah-Mount Laurel aquifer Base	Englishtown aquifer system Top	Englishtown aquifer system Base	Potomac-Raritan-Magothy aquifer system: Upper aquifer Top	Upper aquifer Base	Middle aquifer Top	Middle aquifer Base	Lower aquifer Top	Lower aquifer Base
5-293	60	--	--	--	--	--	--	--	--	34	-3	-73	-224	-306	--	--	--	--
5-303	20	--	--	--	--	--	--	--	--	--	--	-30	-142	-207	-250	-376	-460	--
5-332	150	--	--	--	--	--	--	40	-26	-90	-153	-178	-384	-516	--	--	--	--
5-334	165	--	--	--	--	--	135	50	-29	-98	-137	-191	-363	--	-670	--	--	--
5-340	126	--	--	--	--	--	--	--	6	-68	-124	-174	-354	-507	-654	-710	--	--
5-344	136	--	--	--	--	--	--	--	74	6	-34	-113	-288	-344	-454	-528	--	--
5-368	90	10	--	--	--	--	--	--	-200	--	--	--	--	--	--	--	--	--
5-378	65	--	--	--	--	--	--	--	-123	-227	-263	-298	--	--	--	--	--	--
5-385	30	--	--	--	--	--	--	--	-30	-130	-170	-212	-450	-500	-710	-818	--	--
5-388	160	44	--	--	--	--	1	-28	-98	-180	-233	-259	-476	-592	-740	--	--	--
5-417	48	-137	--	--	-164	--	--	--	--	--	--	--	--	--	--	--	--	--
5-436	96	--	--	--	--	--	--	--	32	-60	-95	-141	-315	-422	--	--	--	--
5-440	75	--	--	--	--	--	--	--	--	33	8	-36	-206	-325	-434	-566	--	--
5-448	40	--	--	--	--	--	--	--	--	--	--	--	-22	-104	-153	--	--	--
5-451	67	-116	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5-454	67	-100	--	--	-135	--	--	--	--	--	--	--	--	--	--	--	--	--
5-464	130	--	--	--	--	--	--	--	-230	--	--	--	--	--	--	--	--	--
5-465	98	-53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5-485	51	-305	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5-488	35	-269	--	--	-340	-429	--	--	--	--	--	--	--	--	--	--	--	--
5-598	34	-150	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5-608	63	-165	--	--	-234	--	--	--	--	--	--	--	--	--	--	--	--	--
5-612	41	-183	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5-635	65	--	--	--	--	--	--	--	--	--	--	5	-130	-177	-223	--	--	--
5-644	18	--	--	--	--	--	--	--	--	--	--	-2	-132	-175	-222	-370	-401	-498
5-648	34	--	--	--	--	--	--	--	--	--	--	--	-81	-120	-168	--	--	--
c → 5-658	19	--	--	--	--	--	--	--	--	--	--	--	-12	-29	-62	-238	--	--
d → 5-668	48	--	--	--	--	--	--	--	--	--	--	--	--	-17	-44	-200	--	--
5-672	90	-135	--	--	-266	-361	--	--	-750	-840	-860	--	-1182	-1291	--	--	--	--
5-676	197	-111	--	--	-231	-350	--	--	--	--	--	--	--	--	--	--	--	--
5-678	112	-88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5-681	108	-102	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5-683	132	-90	--	--	-175	-240	--	--	-558	-662	-681	-750	-948	-1074	--	--	--	--
5-691	109	-56	--	--	--	--	--	--	-347	-461	-501	-543	-751	--	--	--	--	--
5-695	111	-47	--	--	--	--	--	--	-297	-401	--	--	--	--	--	--	--	--

c & d match well c & d in Ref. 5, pages 8 – 10

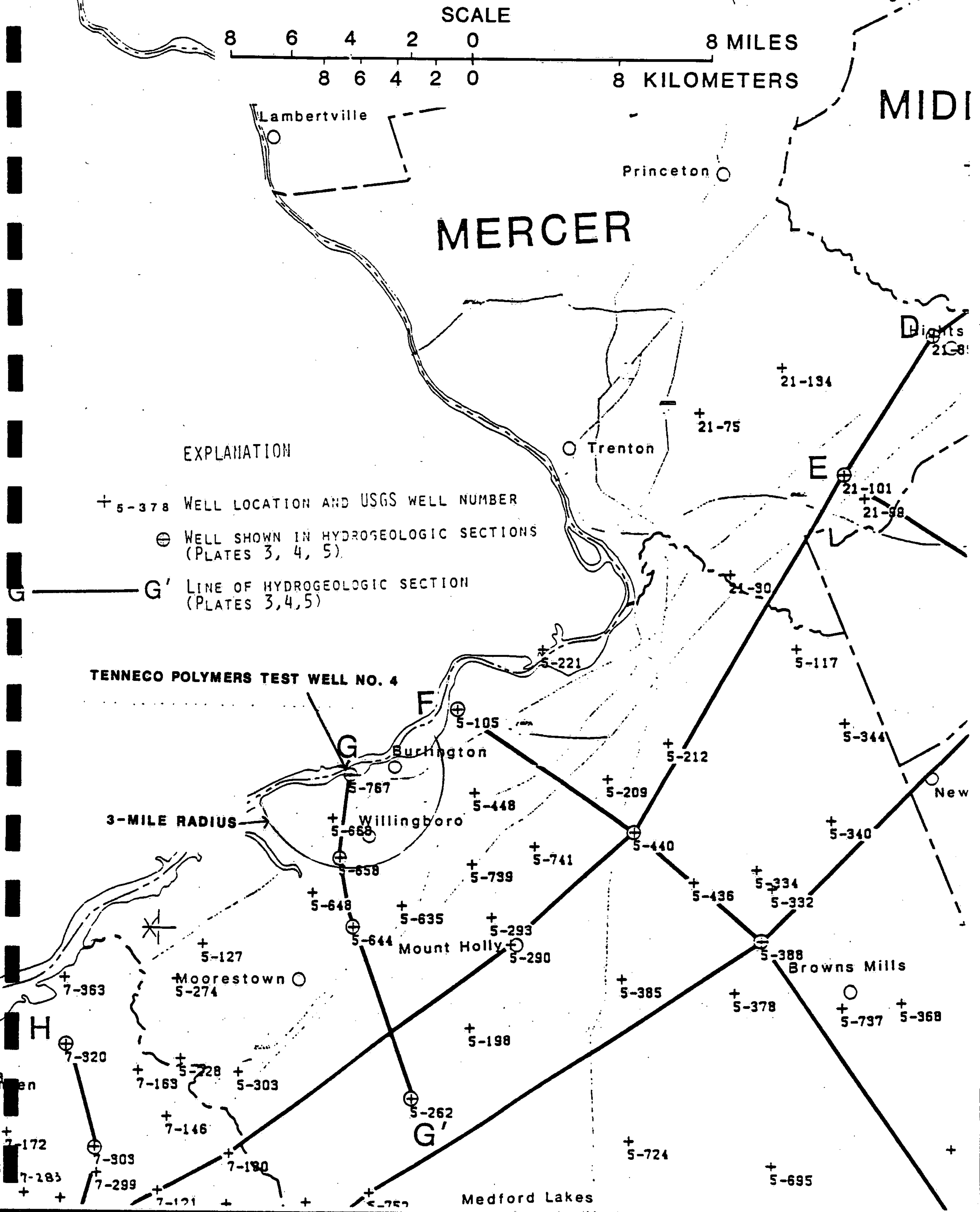
Table 4.--Altitudes of top and base of hydrogeologic units--Continued.
[In feet above or below sea level]

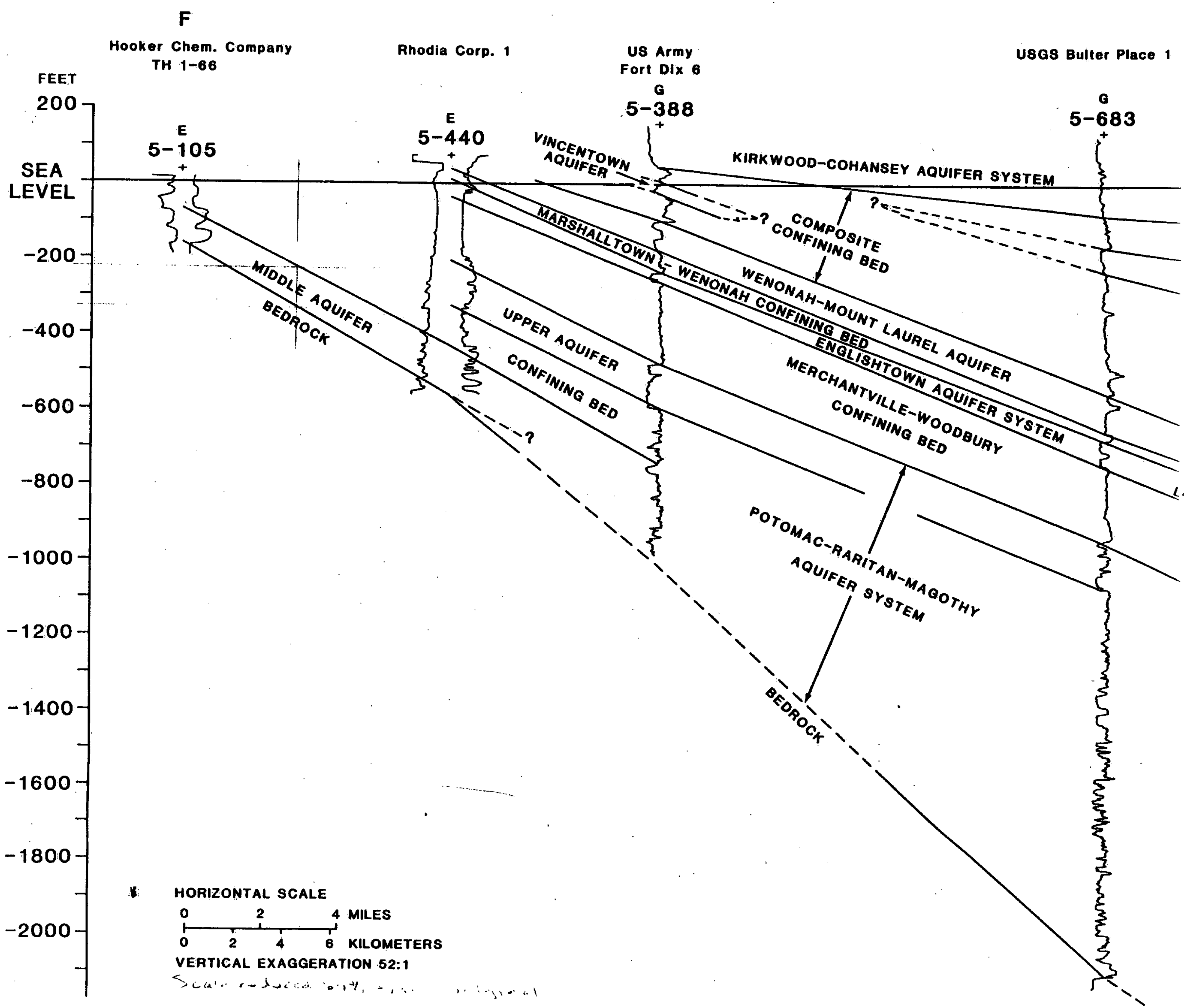
Well number	Altitude of land surface	Kirkwood-Cohansey aquifer system Base	Atlantic City 800-foot sand Top	Atlantic City 800-foot sand Base	Piney Point aquifer Top	Piney Point aquifer Base	Vincentown aquifer Top	Vincentown aquifer Base	Wenonah-Mount Laurel aquifer Top	Wenonah-Mount Laurel aquifer Base	Englishtown aquifer system Top	Englishtown aquifer system Base	Potomac-Raritan-Magothy aquifer system: Upper aquifer Top	Upper aquifer Base	Middle aquifer Top	Middle aquifer Base	Lower aquifer Top	Lower aquifer Base
5-696	124	-56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5-697	144	-56	--	--	--	--	--	--	-436	-530	-592	-638	--	--	--	--	--	--
5-699	117	-56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5-724	43	--	--	--	--	--	--	--	-147	-257	-294	--	--	--	--	--	--	--
5-737	75	25	--	--	--	--	--	--	-195	--	--	--	--	--	--	--	--	--
5-739	80	--	--	--	--	--	--	--	--	--	50	-10	-146	-230	--	--	--	--
5-741	35	--	--	--	--	--	--	--	--	--	--	-28	-165	--	--	--	--	--
5-752	45	--	--	--	--	--	35	-11	-61	-151	-182	-194	-393	--	--	--	--	--
9 → 5-767	10	--	--	--	--	--	--	--	--	--	--	--	--	--	-13	-129	--	--
7- 8	80	--	--	--	--	--	--	--	--	--	--	--	-101	-189	-242	-320	-370	-480
7- 19	145	-10	--	--	--	--	--	--	-151	-225	-285	-315	-485	-568	--	--	--	--
7- 78	22	--	--	--	--	--	--	--	--	--	--	--	--	-1	-19	-57	-80	-149
7-117	156	--	--	--	--	--	112	78	24	-8	-80	-94	-271	-417	--	--	--	--
7-121	80	--	--	--	--	--	--	--	--	4	-32	-47	-210	-282	-377	-548	-568	-682
7-130	71	--	--	--	--	--	--	--	--	17	-36	-79	-216	-292	-380	-521	-577	-676
7-146	40	--	--	--	--	--	--	--	--	--	--	10	-126	-198	-226	-390	-425	-483
7-163	32	--	--	--	--	--	--	--	--	--	--	--	-71	-142	-183	-278	-338	-438
7-170	55	--	--	--	--	--	25	-21	-69	--	--	--	--	--	--	--	--	--
7-172	10	--	--	--	--	--	--	--	--	--	--	--	-56	-91	-105	-141	-178	-298
7-184	70	--	--	--	--	--	40	17	-38	-93	-147	-176	-348	-420	-452	-630	-800	-1027
7-221	10	--	--	--	--	--	--	--	--	--	--	--	--	-82	-106	-162	-192	-237
7-228	145	-15	--	--	--	--	--	--	-165	-271	-309	--	--	--	--	--	--	--
7-251	75	--	--	--	--	--	45	29	-17	-97	-131	-155	-316	--	--	--	--	--
7-257	75	--	--	--	--	--	--	49	10	-77	-109	-143	-284	--	--	--	--	--
7-278	65	--	--	--	--	--	--	--	--	34	8	-23	-127	-215	-231	-301	-388	-535
7-283	24	--	--	--	--	--	--	--	--	--	--	--	-83	-164	-176	-233	-343	-468
7-299	75	--	--	--	--	--	--	--	--	--	--	--	-119	-214	-254	-388	-472	-535
7-303	55	--	--	--	--	--	--	--	--	--	--	--	-98	-188	-229	-325	-387	-461
7-317	68	--	--	--	--	--	--	--	--	38	-1	-57	-184	-302	-336	-426	-501	--
7-320	65	--	--	--	--	--	--	--	--	--	--	--	--	-21	-59	-123	-153	--
7-363	14	--	--	--	--	--	--	--	--	--	--	--	--	-4	-19	-48	-66	-144
7-392	150	--	--	--	--	--	--	--	-112	-204	-246	-282	-443	-535	--	--	--	--
7-412	150	60	--	--	--	--	20	-24	-71	-161	-184	-246	-398	-504	-532	-660	-802	-1076
7-430	94	-86	--	--	-162	--	--	--	--	--	--	--	--	--	--	--	--	--
7-451	122	-56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

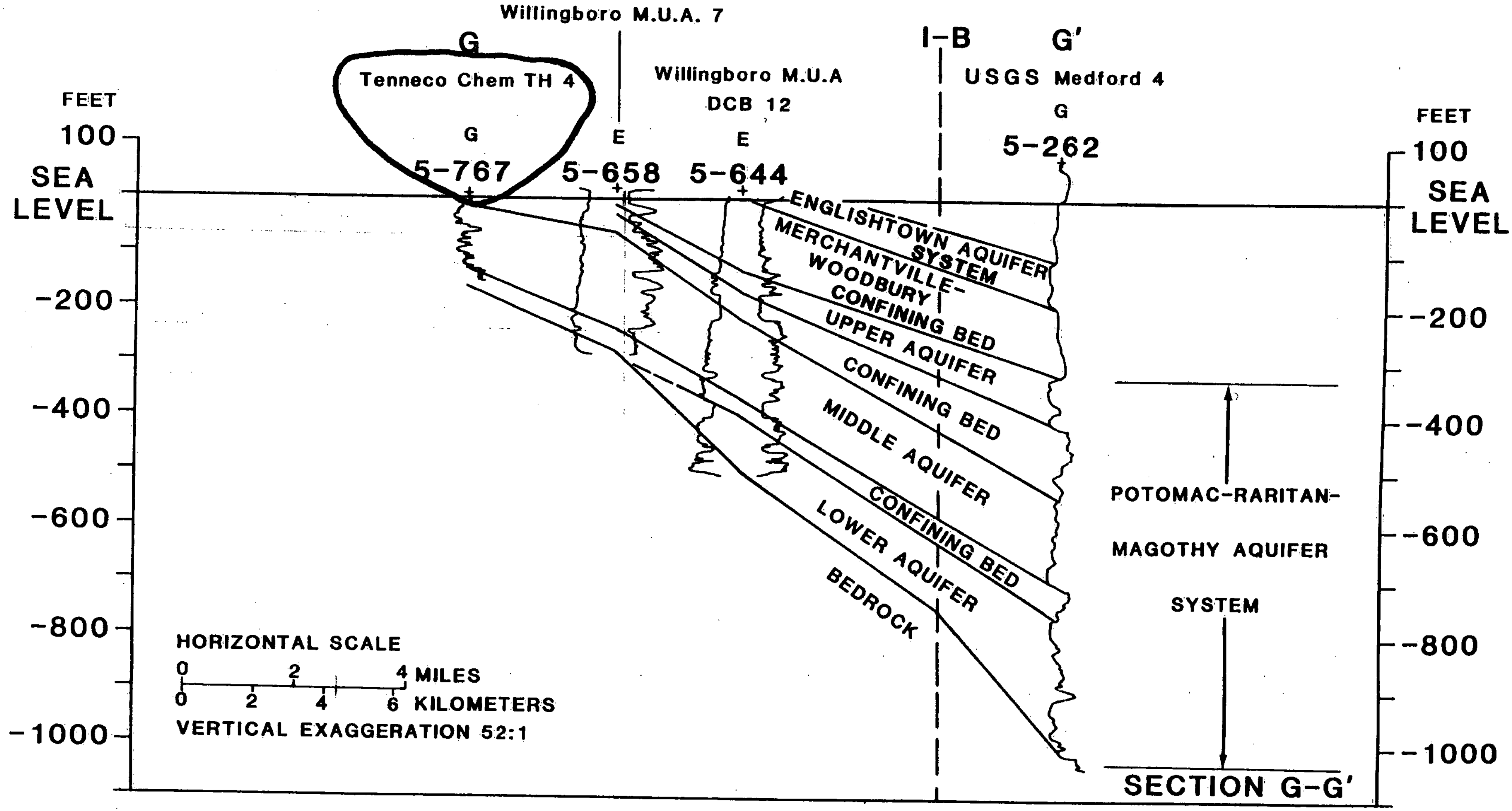
9 matches well 9 in Ref. 5, pages 11-13

LOCATION MAP OF WELLS AND LINES OF HYDROGEOLOGIC SECTIONS, COASTAL PLAIN, NEW JERSEY.

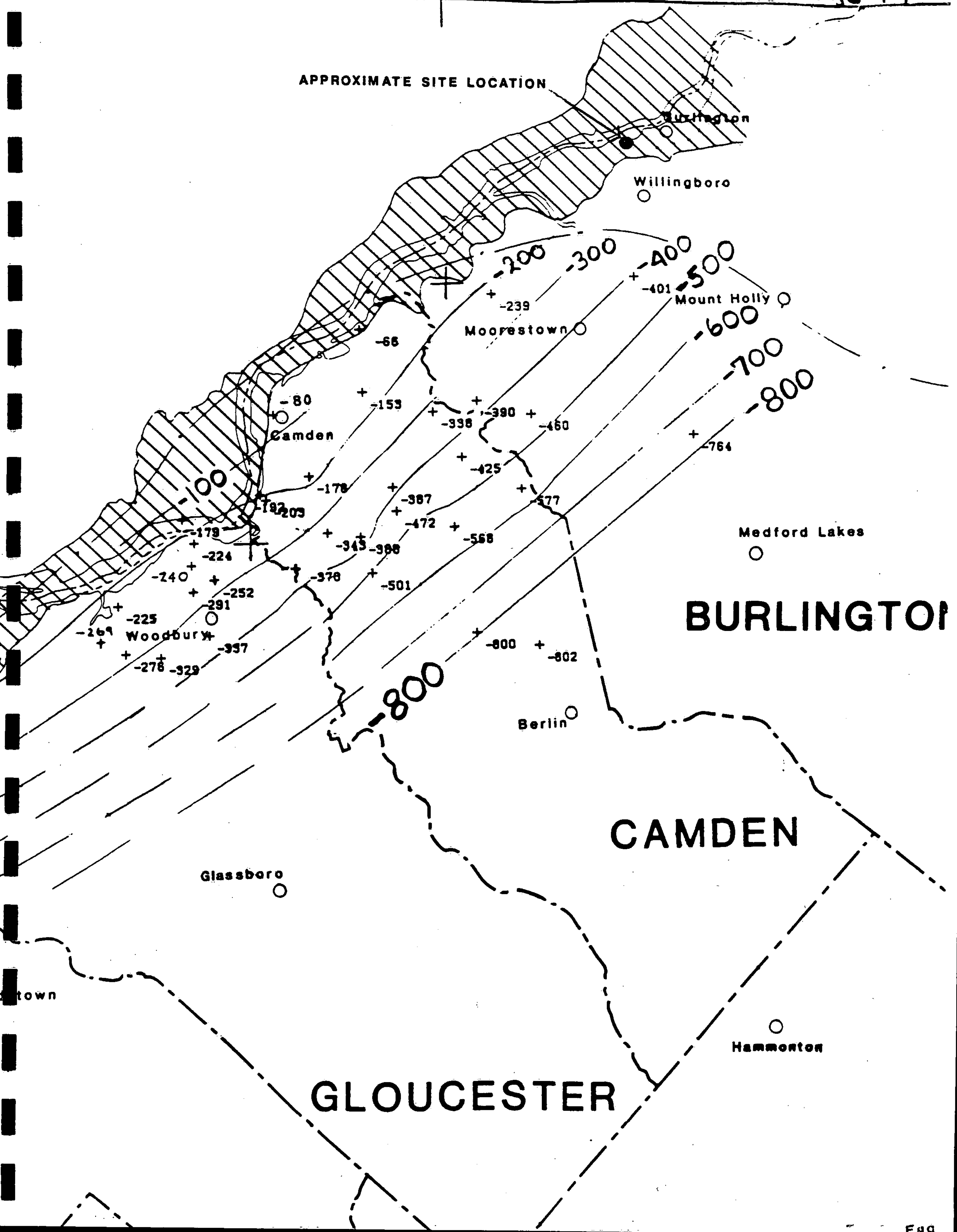
Page 14




F
Hooker Chem. Company
TH 1-66
Rhodia Corp. 1
US Army
Fort Dix 6
USGS Bulter Place 1
FEET
200
SEA LEVEL
-200
-400
-600
-800
-1000
-1200
-1400
-1600
-1800
-2000
E
5-105
E
5-440
G
5-388
G
5-683
VINCENTOWN AQUIFER
KIRKWOOD-COHANSEY AQUIFER SYSTEM
COMPOSITE CONFINING BED
MARSHALLTOWN - WENONAH CONFINING BED
WENONAH-MOUNT LAUREL AQUIFER
ENGLISHTOWN AQUIFER SYSTEM
MERCHANTVILLE-WOODBURY CONFINING BED
MIDDLE AQUIFER
BEDROCK
UPPER AQUIFER
CONFINING BED
POTOMAC-RARITAN-MAGOTHY AQUIFER SYSTEM
BEDROCK
HORIZONTAL SCALE
0 2 4 MILES
0 2 4 6 KILOMETERS
VERTICAL EXAGGERATION 52:1


Willingboro M.U.A. 7
G
I-B
G'
Tenneco Chem TH 4
Willingboro M.U.A
DCB 12
USGS Medford 4
G
G
E
E
5-767
5-658
5-644
5-262
FEET
100
SEA LEVEL
-200
-400
-600
-800
-1000
FEET
100
SEA LEVEL
-200
-400
-600
-800
-1000
ENGLISHTOWN AQUIFER SYSTEM
MERCHANTVILLE-WOODBURY CONFINING BED
UPPER AQUIFER
CONFINING BED
MIDDLE AQUIFER
CONFINING BED
LOWER AQUIFER
BEDROCK
POTOMAC-RARITAN-MAGOTHY AQUIFER SYSTEM
HORIZONTAL SCALE
0 2 4 MILES
0 2 4 6 KILOMETERS
VERTICAL EXAGGERATION 52:1
SECTION G-G'

Page 16


APPROXIMATE SITE LOCATION
Burlington
Willingboro
-100
-200
-300
-400
-500
-600
-700
-800
-239
-401
Mount Holly
Moorestown
-66
-80
-153
Camden
-338
-380
-460
-764
-425
-178
-387
-577
-192
-203
-472
-179
-343
-388
-568
Medford Lakes
-224
-240
-378
-501
-252
-291
BURLINGTON
-225
-269
Woodbury
-337
-800
-802
-278
-329
Berlin
CAMDEN
Glassboro
town
Hammonton
GLOUCESTER

EXPLANATION

OUTCROP AREA OF THE POTOMAC GROUP AND RARITAN FORMATION

—— -400 - - STRUCTURE CONTOUR SHOWS ALTITUDE OF TOP OF THE LOWER AQUIFER
DASHED WHERE APPROXIMATELY LOCATED
CONTOUR INTERVAL 100 FEET
DATUM IS SEA LEVEL

+ -401 WELL LOCATION
NUMBER IS ALTITUDE OF TOP OF LOWER AQUIFER IN FEET
DATUM IS SEA LEVEL

APPROXIMATE UPDIP LIMIT OF THE LOWER AQUIFER

) Structure contours of the top of the lower aquifer

8 6 4 2 0 8 MILES

8 6 4 2 0 8 KILOMETERS

SCALE

FOR PLATE 6

REFERENCE #3

Page 1 27-34-783

Form 87

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 27-4379
Application No. [illegible]
County

WELL RECORD

1. OWNER CARY CHEMICAL CO. ADDRESS BURLINGTON, N.J.
   Owner's Well No. #4 WELL SURFACE ELEVATION ______ Feet (Above mean sea level)
2. LOCATION BURLINGTON PLANT, BURLINGTON COUNTY, N.J.
3. DATE COMPLETED 11-11-64 DRILLER LAYNE-NEW YORK CO. INC.
4. DIAMETER: top 18 Inches Bottom 12 Inches TOTAL DEPTH 112 Feet
5. CASING: Type STEEL Diameter 12 Inches Length 82 Feet
6. SCREEN: Type STAINLESS STEEL Size of Opening [illegible] Diameter 12 Inches Length 30 Feet
   Range in Depth: Top 82 Feet; Bottom 112 Feet
   Geologic Formation [illegible]
   Tail piece: Diameter 12 Inches Length 1 Feet
7. WELL FLOWS NATURALLY ______ Gallons per Minute at ______ Feet above surface
   Water rises to ______ Feet above surface
8. RECORD OF TEST: Date 11 11 64 Yield 800 Gallons per minute
   Static water level before pumping 14 Feet below surface
   Pumping level 47 feet below surface after [illegible] hours pumping
   Drawdown [illegible] Feet Specific Capacity [illegible] Gals. per min. per ft. of drawdown
   How Pumped [illegible] How measured [illegible]
   Observed effect on nearby wells [illegible]
9. PERMANENT PUMPING EQUIPMENT:
   Type [illegible] Mfrs. Name [illegible]
   Capacity [illegible] G.P.M. How Driven [illegible] H.P. ______ R.P.M. [illegible]
   Depth of Pump in well ______ Feet Depth of Footpiece in well ______ Feet
   Depth of Air Line in well ______ Feet Type of Meter on Pump ______ Size ______ Inches
10. USED FOR INDUSTRIAL SUPPLY AMOUNT: Average ______ Gallons Daily; Maximum ______ Gallons Daily
11. QUALITY OF WATER ______ Sample: Yes ______ No. ______
    Taste ______ Odor ______ Color ______ Temp. ______ °F
12. LOG SEE REVERSE SIDE Are samples available? ______
    (Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA LAYNE NEW YORK CO. INC.
14. DATA OBTAINED BY LAYNE NEW YORK CO. INC. Date [illegible]

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

LOG OF WELL

0'– 2' YELLOW SANDY CLAY
2'– 4' BLACK RIVER MUD
4'– 24' FINE TO COARSE SAND, LARGE GRAVEL, STREAKS OF CLAY
24'– 43' SOFT & TOUGH SANDY WHITE & YELLOW CLAY, STKS OF SAND & GRAVEL.
43'– 65' SANDY YELLOW & WHITE CLAY, STKS OF SAND & GRAVEL
65'– 89' FINE TO COAR SAND & GRAVEL, STKS OF SANDY WHITE CLAY.
89'– 108' FINE TO COAR. SAND & GRAVEL, STKS OF SOFT WHITE CLAY.
108'– 118' FINE TO COAR SAND & GRAVEL, STKS OF SOFT WHITE CLAY.

*From USGS Inventory of wells >75 gpm (Ref. 5)

Ind. well #4 Lat 40° 04' 18" Long 74° 52' 47" (this well)
Test well #4 Lat 40° 04' 20" Long 74° 52' 45"

FORM 87

Page 3 27-34-783

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 27-4380
Application No. 2-157
County ______

WELL RECORD

1. OWNER CARY CHEMICAL CO. ADDRESS P.O. BOX 116, BURLINGTON, N.J.

Owner's Well No. WELL No 5 SURFACE ELEVATION ______ Feet (Above mean sea level)

2. LOCATION BURLINGTON BURLINGTON COUNTY NEW JERSEY

DATE COMPLETED 11-20-64 DRILLER LAYNE-NEW YORK CO. INC.

DIAMETER: top 18 Inches Bottom 12 Inches TOTAL DEPTH 134 Feet

CASING: Type STEEL PIPE Diameter 18 Inches Length 87 Feet

SCREEN: Type STAINLESS STEEL Size of Opening SHUTTER Diameter 12 Inches Length 30 Feet

Range in Depth { Top 102 Feet; Bottom 132 Feet } Geologic Formation YELLOW & WHITE SAND & GRAVEL, STREAKS CLAY

Tail piece: Diameter 12 inches Length 2 Feet

WELL FLOWS NATURALLY ______ Gallons per Minute at ______ Feet above surface

Water rises to ______ Feet above surface

RECORD OF TEST: Date 11-20-64 Yield 500 Gallons per minute

Static water level before pumping 13' Feet below surface

Pumping level 50 feet below surface after 6 hours pumping

Drawdown 37 Feet Specific Capacity 16 Gals. per min. per ft. of drawdown

How Pumped VERTICAL TURBINE, MOTOR DRIVEN How measured ORIFICE

Observed effect on nearby wells ______

PERMANENT PUMPING EQUIPMENT:

Type ______ Mfrs. Name ______

Capacity ______ G.P.M. How Driven ______ H.P. ______ R.P.M. ______

Depth of Pump in well ______ Feet Depth of Footpiece in well ______ Feet

Depth of Air Line in well ______ Feet Type of Meter on Pump ______ Size ____ Inches

USED FOR INDUSTRIAL SUPPLY AMOUNT { Average ______ Gallons Daily; Maximum ______ Gallons Daily }

QUALITY OF WATER ______ Sample: Yes ____ No. ____

Taste ______ Odor ______ Color ______ Temp. ______ °F

LOG SEE REVERSE SIDE Are samples available? ______
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)

SOURCE OF DATA LAYNE-NEW YORK CO. INC.

DATA OBTAINED BY LAYNE-NEW YORK CO. INC. Date NOV 24, 1964

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

AW 87   1/W   Page 4   27-33-979

DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 27-4585
Application No. 838
County

WELL RECORD

1. OWNER DELAWARE RIVER WATER COMPANY ADDRESS 44 Broad St. Beverlay, New Jersey
Owner's Well No. 25 SURFACE ELEVATION ______ Feet (Above mean sea level)

2. LOCATION Beverly Station

3. DATE COMPLETED June 24, 1965 DRILLER A. C. Schultes & Sons, Inc.

4. DIAMETER: top 12x18 Inches Bottom 12 Inches TOTAL DEPTH 55'6" Feet

5. CASING: Type Steel Diameter 18x12 Inches Length 18"-35'11" 12"-43'11" Feet

6. SCREEN: Type Johnson SS Size of Opening 100 Diameter 12 Inches Length 10'8" Feet
Range in Depth { Top 44'10" Feet, Bottom 55'6" Feet } Geologic Formation
Tail piece Diameter ______ Inches Length ______ Feet

7. WELL FLOWS NATURALLY No Gallons per Minute at ______ Feet above surface
Water rises to ______ Feet above surface

8. RECORD OF TEST: Date June 24, 1965 Yield 503 Gallons per minute
Static water level before pumping 23'8" Feet below surface
Pumping level 35'2" feet below surface after 3 hours pumping
Drawdown 11'6" Feet Specific Capacity 47.1 Gals. per min. per ft. of drawdown
How Pumped Vertical Turbine Pump Test How measured Orifice
Observed effect on nearby wells None

9. PERMANENT PUMPING EQUIPMENT:
Type ______ Mfrs. Name ______
Capacity ______ G.P.M. How Driven ______ H.P. ______ R.P.M. ______
Depth of Pump in well ______ Feet Depth of Footpiece in well ______ Feet
Depth of Air Line in well ______ Feet Type of Meter on Pump ______ Size ______ Inches

10. USED FOR Public Supply AMOUNT { Average ______ Gallons Daily, Maximum ______ Gallons Daily }

11. QUALITY OF WATER ______ Sample: Yes ______ No. ______
Taste ______ Odor ______ Color ______ Temp. ______ °F

12. LOG See Reverse Are samples available? ______
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)

13. SOURCE OF DATA Driller's Log

14. DATA OBTAINED BY A. C. Schultes & Sons, Inc. Date 8/3/65

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

Clayish brown sand	0 to 8'
Small stones, gravel & large rocks	8 - 27'
Medium to coarse brown sand, gravel & more rocks	27 - 29'
Sandy brown clay & gravel	29 - 30'
Gray sand, from fine to large rocks weighing from 1½ - 2 lbs.	30 - 35'
Fine to coarse brown sand, gravel & large rocks	35 - 43'
Dirty brown sand, gravel & large rocks	43 - 53'6"
Weathered Rock	53'6" - 60'

Drilled to 60' [illegible] G.L.

FORM

Page 6

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 27-5015
Application No. ______
County ______

WELL RECORD

1. OWNER MR. ELMER BROWN ADDRESS 5 Devlin Ave. Burl, N.J. 08016

Owner's Well No. ______ SURFACE ELEVATION ______ Feet (Above mean sea level)

2. LOCATION ______

3. DATE COMPLETED 7-2-68 DRILLER ECONO-WELL INC.

4. DIAMETER: top 3 Inches Bottom 3 Inches TOTAL DEPTH 41 Feet

5. CASING: Type black-steel Diameter 3 Inches Length ______ Feet

6. SCREEN: Type PVC Size of Opening #30 Diameter 3 Inches Length 5 Feet

Range in Depth { Top ______ Feet, Bottom ______ Feet } Geologic Formation ______

Tail piece: Diameter ______ Inches Length ______ Feet

7. WELL FLOWS NATURALLY ______ Gallons per Minute at ______ Feet above surface

Water rises to ______ Feet above surface

8. RECORD OF TEST: Date 7-2-68 Yield 18 Gallons per minute

Static water level before pumping 12 Feet below surface

Pumping level 23 feet below surface after 2 hours pumping

Drawdown ______ Feet Specific Capacity ______ Gals. per min. per ft. of drawdown

How Pumped electric pump How measured barrel

Observed effect on nearby wells ______

9. PERMANENT PUMPING EQUIPMENT:

Type jet Mfrs. Name Jacuzzi

Capacity 10 G.P.M. How Driven electric H.P. 1 R.P.M. 3450

Depth of Pump in well ______ Feet Depth of Footpiece in well ______ Feet

Depth of Air Line in well ______ Feet Type of Meter on Pump ______ Size ______ Inches

10. USED FOR domestic AMOUNT { Average ______ Gallons Daily, Maximum ______ Gallons Daily }

11. QUALITY OF WATER good Sample: Yes ______ No. x

Taste ______ Odor ______ Color ______ Temp. ______ °F

12. LOG ______ Are samples available? ______
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)

13. SOURCE OF DATA Well driller's log

14. DATA OBTAINED BY Martin J. Towey Date 4-9-70

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

27-34-8 27-3222

Page 7

Form 87

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. ~~3~~
Application No.
County

WELL RECORD

1. OWNER MR. JERRY DOUGLAS ADDRESS Rte #130 Florence, N.J.

Owner's Well No. ______ SURFACE ELEVATION ______ Feet (Above mean sea level)

2. LOCATION ______

3. DATE COMPLETED 4-4-70 DRILLER ECONO-WELL INC.

4. DIAMETER: top 4 Inches Bottom 4 Inches TOTAL DEPTH 51 Feet

5. CASING: Type black-steel Diameter 4 Inches Length ______ Feet

6. SCREEN: Type PVC Size of Opening .025 Diameter 4 Inches Length 5 Feet

Range in Depth { Top ______ Feet, Bottom ______ Feet } Geologic Formation ______

Tail piece: Diameter ______ Inches Length ______ Feet

7. WELL FLOWS NATURALLY ______ Gallons per Minute at ______ Feet above surface

Water rises to ______ Feet above surface

8. RECORD OF TEST: Date 4-470 Yield 20 Gallons per minute

Static water level before pumping 26 Feet below surface

Pumping level 37 feet below surface after 2 hours pumping

Drawdown ______ Feet Specific Capacity ______ Gals. per min. per ft. of drawdown

How Pumped electric pump How measured barrel

Observed effect on nearby wells ______

9. PERMANENT PUMPING EQUIPMENT:

Type jet Mfrs. Name Myers

Capacity 10 G.P.M. How Driven electric H.P. ______ R.P.M. 3450

Depth of Pump in well ______ Feet Depth of Footpiece in well ______ Feet

Depth of Air Line in well 11 Feet Type of Meter on Pump ______ Size ______ Inches

10. USED FOR domestic AMOUNT { Average ______ Gallons Daily, Maximum ______ Gallons Daily }

11. QUALITY OF WATER ______ Sample: Yes ______ No. ______

Taste ______ Odor ______ Color ______ Temp. ______ °F

12. LOG ______ Are samples available? ______
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)

13. SOURCE OF DATA Well driller's log

14. DATA OBTAINED BY Martin J. Towey Date 4-6-70

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

27-43-329 ☒ Page 8

FORM 87

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 27-5422
Application No. ______
County ______

WELL RECORD

1. OWNER Vincent Giannetto ADDRESS 704 Woodland Rd. Edgewater Park
   Owner's Well No. ______ SURFACE ELEVATION ______ Feet (Above mean sea level)
2. LOCATION Marshall St, Edgewater Park, N.J.
3. DATE COMPLETED 5-13-74 DRILLER Howard Farmer
4. DIAMETER: top ______ Inches Bottom ______ Inches TOTAL DEPTH ______ Feet
5. CASING: Type Black Steel Diameter 4 Inches Length 49 Feet
6. SCREEN: Type P.V.C. Size of Opening .050 Diameter 4 Inches Length 5 Feet
   Range in Depth { Top ______ Feet / Bottom ______ Feet } Geologic Formation ______
   Tail piece: Diameter ______ Inches Length ______ Feet
7. WELL FLOWS NATURALLY ______ Gallons per Minute at ______ Feet above surface
   Water rises to ______ Feet above surface
8. RECORD OF TEST: Date ______ Yield ______ Gallons per minute
   Static water level before pumping 16 Feet below surface
   Pumping level ______ feet below surface after ______ hours pumping
   Drawdown ______ Feet Specific Capacity ______ Gals. per min. per ft. of drawdown
   How Pumped Electric How measured [illegible]
   Observed effect on nearby wells None
9. PERMANENT PUMPING EQUIPMENT:
   Type ______ Mfrs. Name ______
   Capacity ______ G.P.M. How Driven Electric H.P. ______ R.P.M. ______
   Depth of Pump in well ______ Feet Depth of Footpiece in well ______ Feet
   Depth of Air Line in well ______ Feet Type of Meter on Pump ______ Size Inches
10. USED FOR Domestic AMOUNT { Average ______ Gallons Daily / Maximum ______ Gallons Daily }
11. QUALITY OF WATER Good Sample: Yes ______ No. ______
    Taste ______ Odor ______ Color ______ Temp. ______ °F
12. LOG ______ Are samples available? ______
    (Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA Well drillers log
14. DATA OBTAINED BY Howard Farmer Date ______

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

0 - 24 - sand
24 - 27 sand & gravel
27 - 32 Clay
32 - 43 sand & gravel
43 - 49 coarse sand & pea gravel

27-43-364

Form 87 -

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 27-44
Application No. ______
County ______

WELL RECORD

Page 10

1. OWNER Harry R. Chant ADDRESS Beverly N.J.
Owner's Well No. ______ SURFACE ELEVATION ______ Feet (Above mean sea level)
2. LOCATION Delanco township Burl. Co
3. DATE COMPLETED 4/65 DRILLER Chas. Gibersen
4. DIAMETER: top 6 inches Bottom 6 inches TOTAL DEPTH 155 Feet
5. CASING: Type Steel Diameter 6 inches Length 140 Feet
6. SCREEN: Type Slot Size of Opening 25 30 40 Diameter 5 1/2 inches Length 15 Feet
Range in Depth { Top ______ Feet, Bottom ______ Feet } Geologic Formation P
Tail piece: Diameter ______ inches Length ______ Feet
7. WELL FLOWS NATURALLY ______ Gallons per Minute at ______ Feet above surface
Water rises to ______ Feet above surface
8. RECORD OF TEST: Date 4/65 Yield ______ Gallons per minute
Static water level before pumping 20 Feet below surface
Pumping level 40 feet below surface after 6 hours pumping
Drawdown 20 Feet Specific Capacity 60 Gals. per min. per ft. of drawdown
How Pumped ______ How measured ______
Observed effect ______ wells ______
9. PERMANENT PUMPING EQUIPMENT:
Type ______ Mfrs. Name ______
Capacity ______ G.P.M. How Driven ______ H.P. 75 R.P.M. 3500
Depth of Pump in well ______ Feet Depth of Footpiece in well ______ Feet
Depth of Air Line in well ______ Feet Type of Meter on Pump ______ Size ______ inches
10. USED FOR irrigation AMOUNT { Average ______ Gallons Daily, Maximum ______ Gallons Daily }
11. QUALITY OF WATER Good Sample: Yes ______ No. ______
Taste ______ Odor No Color No Temp. ______ °F
12. LOG ______ Are samples available? ______
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA Driller
14. DATA OBTAINED BY Same Date 4/65

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

27-33-384

Form 87

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 27-3546
Application No. ________
County ________

WELL RECORD

Page 11

1. OWNER OLYMPIA DINER ADDRESS RT. 130 EDGEWATE PARK
   Owner's Well No. ________ SURFACE ELEVATION ________ Feet (Above mean sea level)
2. LOCATION ~~MAY~~
3. DATE COMPLETED MAY 5, 1961 DRILLER JOHN LIAUCKI
4. DIAMETER: top 4 inches Bottom 4 inches TOTAL DEPTH 115 Feet
5. CASING: Type STEEL Diameter 4 inches Length 110 Feet
6. SCREEN: Type RED BRASS Size of Opening 25 Diameter 3½ inches Length 6 Feet
   Range in Depth { Top ________ Feet / Bottom ________ Feet } Geologic Formation ________
   Tail piece: Diameter ________ inches Length ________ Feet
7. WELL FLOWS NATURALLY ________ Gallons per Minute at ________ Feet above surface
   Water rises to ________ Feet above surface
8. RECORD OF TEST: Date DEC 1960 Yield 10 Gallons per minute
   Static water level before pumping 40 Feet below surface
   Pumping level 65 feet below surface after 8 hours pumping
   Drawdown 25 Feet Specific Capacity ________ Gals. per min. per ft. of drawdown
   How Pumped COMPRESSOR How measured 50 GAL DRUM
   Observed effect on wells ________
9. PERMANENT PUMPING EQUIPMENT:
   Type JET Mfrs. Name RAPIDAYTON
   Capacity 8 G.P.M. How Driven ELECTRIC H.P. ½ R.P.M. ________
   Depth of Pump in well 80 feet Depth of Footpiece in well 80 Feet
   Depth of Air Line in well 110 Feet Type of Meter on Pump ________ Size ____ Inches
10. USED FOR DOMESTIC AMOUNT { Average 800 Gallons Daily / Maximum 1200 Gallons Daily }
11. QUALITY OF WATER IRONY Sample: Yes ____ No. ____
    Taste GOOD Odor NONE Color CLEAR Temp. 58 °F
12. LOG ________ Are samples available? ________
    (Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA ________
14. DATA OBTAINED BY ________ Date ________

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

27.44.2

Form DWR-138
11/80

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. 27-4673

APPLICATION NO. -

COUNTY

WELL RECORD

Page 12

1. OWNER BURLINGTON TWP. ADDRESS BURLINGTON, NJ

Owner's Well No. 4 SURFACE ELEVATION ______ Feet (Above mean sea level)

2. LOCATION BURLINGTON, NJ

3. DATE COMPLETED MAY 1979 DRILLER A. C. SCHULTES & SONS, INC.

4. DIAMETER: Top 18 inches Bottom 12 inches 18" TOTAL DEPTH 366' ~~310'~~ Feet

5. CASING Type BLACK STEEL Diameter 12" Inches Length 315' Feet

6. SCREEN Type S.S. Size of Opening .045 Diameter 12" Inches Length 51' Feet

Range in Depth { Top ______ Feet, Bottom ______ Feet } Geologic Formation ______

Tail Piece Diameter ______ Inches Length ______ Feet

7. WELL FLOWS NATURALLY ______ Gallons per minute at ______ Feet above surface

Water rises to ______ Feet above surface

8. RECORD OF TEST Date MAY 29, 1979 Yield 1034 Gallons per minute

Static water level before pumping 88'9" Feet below surface

Pumping level 146' feet below surface after 48 hours pumping

Drawdown 56 Feet Specific Capacity 18.4 Gals. per min. per ft. of drawdown

How pumped VTP How measured orifice

Observed effect on nearby wells ______

9. PERMANENT PUMPING EQUIPMENT

Type VERTICAL TURBINE PUMP Mfrs. Name WORTHINGTON

Capacity 1034 G.P.M. How Driven ELECTRIC MOTOR H.P. 100 R.P.M. 1800

Depth of Pump in well 201' Feet Depth of Footpiece in well ______ Feet

Depth of Air Line in well 201' Feet Type of Meter on Pump ______ Size ______ Inches

10. USED FOR PUBLIC SUPPLY AMOUNT { Average ______ Gallons Daily, Maximum ______ Gallons Daily }

11. QUALITY OF WATER GOOD Sample: Yes ______ No ______

Taste NONE Odor NONE Color CLEAR Temp. 58 °F.

12. LOG SEE ATTACHED Are samples available? ______

(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)

13. SOURCE OF DATA DRILLERS LOG

14. DATA OBTAINED BY A. C. SCHULTES & SONS, INC. Date 6/16/83

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

Form 67

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

Permit No. 27-5914
Application No. ______
County ______

WELL RECORD Page 13

1. OWNER Triton Inc. ADDRESS Mt. Holly Rd., Burl. N.J.
Owner's Well No. ______ SURFACE ELEVATION ______ Feet (Above mean sea level)
2. LOCATION Burlington Twp., Burl. Co.
3. DATE COMPLETED Nov. 5, 1974 DRILLER Water Wells Co.
4. DIAMETER: top 6 Inches Bottom 6 Inches TOTAL DEPTH 149 Feet
5. CASING: Type Blk. Steel Diameter 6 Inches Length 146 Feet
6. SCREEN: Type Stainless Steel Size of Opening .020 Diameter 6 Inches Length 3 Feet
Range in Depth { Top 146 Feet, Bottom 149 Feet } Geologic Formation ______
Tail piece: Diameter ______ Inches Length ______ Feet
7. WELL FLOWS NATURALLY ______ Gallons per Minute at ______ Feet above surface
Water rises to ______ Feet above surface
8. RECORD OF TEST: Date Nov. 5, 1974 Yield 10 Gallons per minute
Static water level before pumping 80 Feet below surface
Pumping level 85 feet below surface after 4 hours pumping
Drawdown 5 Feet Specific Capacity 2 Gal. per min. per ft. of drawdown
How Pumped Submersible pump How measured barrel
Observed effect o[n] [other] wells ______
9. PERMANENT PUMPING EQUIPMENT:
Type Submersible - by others Mfrs. Name ______
Capacity ______ G.P.M. How Driven ______ H.P. ______ R.P.M. ______
Depth of Pump in well ______ Feet Depth of Footpiece in well ______ Feet
Depth of Air Line in well ______ Feet Type of Meter on Pump ______ Size ______ Inches
10. USED FOR Gas Station AMOUNT { Average 250 Gallons Daily, Maximum 500 Gallons Daily }
11. QUALITY OF WATER Contains Iron Sample: Yes ______ No. ______
Taste none Odor none Color clear Temp. ______ °F
12. LOG ______ Are samples available? ______
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA Drillers Log
14. DATA OBTAINED BY Howard Farmer Date 12/16/74

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated analysis of the water, sketch map, sketch of special casing arrangements etc.)

Form 87

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

Permit No. 27-57
Application No. 1521
County ______

WELL RECORD

Page 14

1. OWNER BURLINGTON TOWNSHIP, N. J. ADDRESS BURLINGTON TWSP., N. J.

   Owner's Well No. 2 SURFACE ELEVATION ______ Feet (Above mean sea level)

2. LOCATION Oxmead Road

3. DATE COMPLETED May, 1973 DRILLER A. C. SCHULTES & SONS, INC.

4. DIAMETER: top 18 inches Bottom 12 inches TOTAL DEPTH 234'0" Feet

5. CASING: Type Steel Diameter 18"x12" Inches Length 18" = 158'0" 12" = 163'0" Feet

6. SCREEN: Type SS/WW Size of Opening .060 Diameter 12" Inches Length 38 Feet

   Range in Depth { Top 163'0" Feet; Bottom 224'0" Feet } Geologic Formation RARITAN

   Tail piece: Diameter 12" Inches Length 10'0" Feet

7. WELL FLOWS NATURALLY ______ Gallons per Minute at ______ Feet above surface

   Water rises to ______ Feet above surface

8. RECORD OF TEST: Date May, 1973 Yield [illegible] Gallons per minute

   Static water level before pumping 77'4" Feet below surface

   Pumping level 89'3" feet below surface after 24 hours hours pumping

   Drawdown 11'11" Feet Specific Capacity 49.5 Gals. per min. per ft. of drawdown

   How Pumped vertical turbine pump How measured orifice

   Observed effect on nearby wells yes

9. PERMANENT PUMPING EQUIPMENT:

   Type V.T.P. Mfrs. Name Worthington

   Capacity 500 G.P.M. How Driven electric H.P. 60 R.P.M. 1300

   Depth of Pump in well 130 Feet Depth of Footpiece in well [illegible] Feet

   Depth of Air Line in well 13' Feet Type of Meter on Pump electric Size [illegible] Inches

10. USED FOR Public Supply AMOUNT { Average ______ Gallons Daily; Maximum ______ Gallons Daily }

11. QUALITY OF WATER Good Sample: Yes ___ No. ___

    Taste None Odor None Color None Temp. 58 °F

12. LOG See Attached Are samples available? ______

    (Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)

13. SOURCE OF DATA Drillers' Log

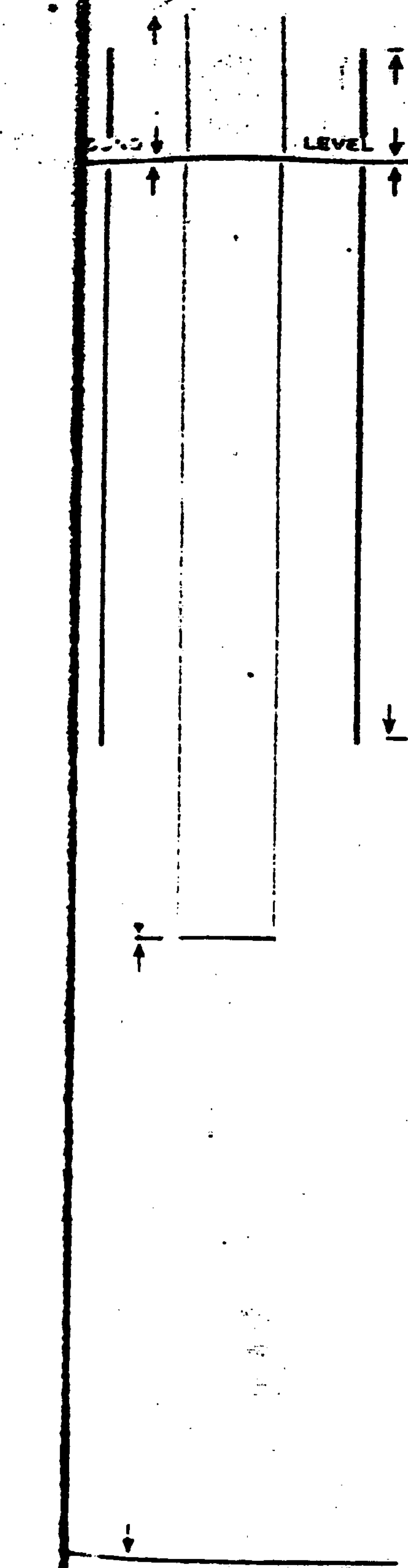
14. DATA OBTAINED BY A. C. Schultes & Sons, Inc. Date May, 1973

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

A.C. SCHULTES & SONS, INC.

Page 15
27-5727

GRAVEL PACKED WELL



WELL LOG	FEET FROM GROUND SURFACE		NAME OF OWNER
Topsoil	0 TO 1		BURLINGTON TOWNSHIP
Brown Sand	1 - 13	Location	OXMEAD ROAD
Brown Clay	13 - 19	Well No.	2
Gray Clay	19 - 53	Job No.	9040
Green Marl	53 - 69	Test Pumped Hrs.	24
Gray Clay & a Few Streaks of Red Clay	69 - 142	Capacity G.P.M.	578
Coarse Sand & Gravel	142 - 145	Static Level [illegible]	77'-4"
Very Fine Sand	145 - 150	Pumping Level [illegible]	89'-3"
Wood	150 - 152	Specific Capacity	48.
Fine to Coarse White Sand	152 - 162	Diameter of Outer Casing	18"
Fine to Coarse Sand & Gravel	162 - 18[illegible]	Diameter of [illegible]	12"
Small Stones-White Clay	18[illegible] - 18[illegible]	[illegible]	257'
Fine White Sand	1[illegible] - 1[illegible]	[illegible]	[illegible]
Sand, Gravel & Stones	1[illegible] - [illegible]	[illegible]	50' [illegible]
White & Gray Clay	20[illegible] - [illegible]	[illegible]	100'
Fine to [illegible] Coarse Sand & Gravel	[illegible] - [illegible]	[illegible]	230'
White & [illegible] Clay	[illegible] - 27[illegible]	[illegible]	5[illegible]"
		[illegible]	[illegible]
		[illegible]	X
			[illegible]
			[illegible]
			[illegible]
			[illegible]
			99[illegible]
		[illegible]	WILSON [illegible]
		[illegible]	MAY, 197[illegible]
			W. JESTER

REFERENCE #4

Page 1

STATE OF NEW JERSEY

DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT

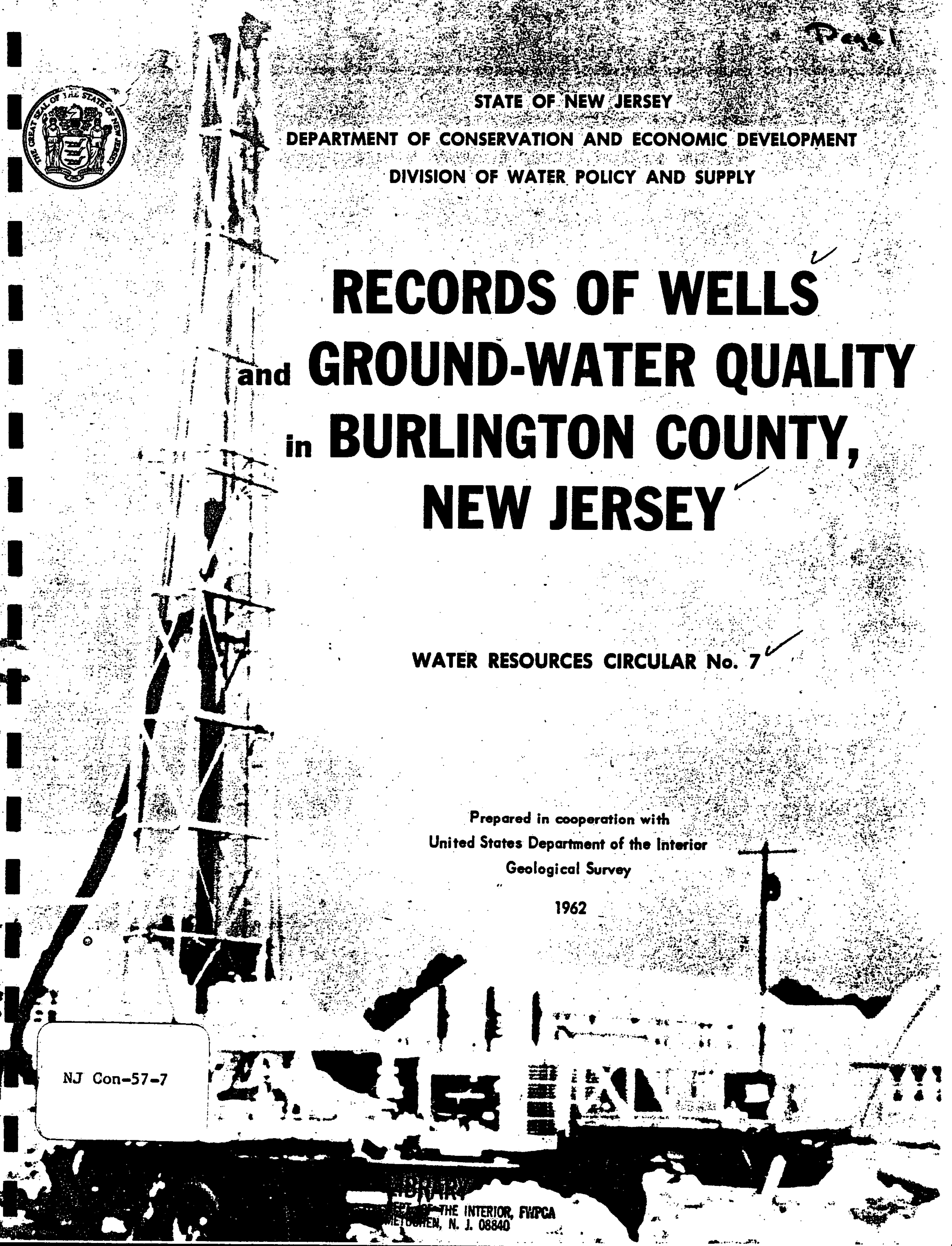
DIVISION OF WATER POLICY AND SUPPLY

RECORDS OF WELLS and GROUND-WATER QUALITY in BURLINGTON COUNTY, NEW JERSEY

WATER RESOURCES CIRCULAR No. 7

Prepared in cooperation with
United States Department of the Interior
Geological Survey

1962



Page 2

RECORDS OF WELLS AND GROUND-WATER QUALITY IN BURLINGTON COUNTY, NEW JERSEY

A Preliminary Report
By
F. Eugene Rush
Geologist
U. S. Geological Survey

Prepared by the U. S. Geological Survey
in cooperation with the
State of New Jersey

Table 1. – Age, thickness, water-bearing character, and lithology of stratigraphic units in Burlington County, N. J.

System	Series	Formation	Thickness (feet)	Water-bearing character	Description
Quaternary	Pleistocene	Cape May Formation	0-40	Variable	Sand and gravel, local clay
		Pensauken Formation	0-40	Variable	Sand and gravel
Tertiary	Pliocene (?)	Cohansey Sand	0-300	Excellent to fair	Sand, medium to coarse, with local ironstone
	Miocene	Kirkwood Formation	0-200	Excellent to fair	Sand, fine, some clay seams
	Eocene	Manasquan Formation	0-100	Poor	Sand, glauconite, clayey
	Paleocene	Vincentown Formation	0-100	Good to poor	Sand, limy, clayey; glauconite
		Hornerstown Sand	0-60	Poor	Glauconite sand, with green clay matrix
Cretaceous		Red Bank Sand	0-40	Fair	Sand and clay with glauconite sand
		Navesink Formation	0-40	Poor	Glauconite sand, with dark gray clay matrix
		Mount Laurel Sand and Wenonah Formation	0-100	Good to poor	Sand, clayey, some glauconite; silt
		Marshalltown Formation	0-100	Poor	Clay, sandy; glauconite sand
		Englishtown Formation	0-100	Good to poor	Sand and clay
		Woodbury Clay	0-120	Poor	Clay, black, micaceous
		Merchantville Formation	0-80	Poor	Clay, dark gray, glauconite sand
		Magothy Raritan Formations	30-800	Excellent to good	Clay and sand, alternating
Early Paleozoic (?)		Wissahickon Formation		Poor	Schist or gneiss, commonly weathered

Table 2.--Records of selected wells in Burlington County, N. J.

Well no.: Numbers correspond to those in figure 2 and tables 3 and 4; A. indicates chemical analysis given in table 4, L. indicates driller's log given in table 3.
Water-bearing formation: Pzw, Wissahickon Formation; Kmr, Magothy and Raritan Formation; Ket, Englishtown Formation; Kmw, Mount Laurel Sand and Wenonah Formation; Tvt, Vincentown Formation; Tkw, Kirkwood Formation; Tch, Cohansey Sand; Qcm, Cape May Formation.
Use: CI, commercial and institutional; D, domestic; Ind, industrial; Irr, irrigation; O, observation; PS, public supply; U, unused.

✓ Indicates wells within a 3-mile radius

Well no.	Location	Owner or name and number	Driller	Year completed	Altitude of land surface (feet)	Total depth drilled (feet)	Well diameter (inches)	Casing length (feet)	Screen setting (feet)	Water-bearing formation	Static water level below land surface (feet)	Yield (gpm)	Drawdown (feet)	Use	Remarks	Well no.
1	Bordentown	Bordentown Water Dept. No. 1	Layne-New York Co., Inc.	1955	89	441	16 & 8	355	355-385	Kmr	86	572	17	PS		1
2	1/2 mi. E of U.S. Highway 206, at Crosswicks Creek	Bordentown Water Dept. White Horse well field No. A 40		1941	9	80	3	75	(none)	do.	(flowing)	25		PS	Approximately 43 flowing wells in field, all with similar construction, 2", 3" or 4" in diam., with total depths of 75'-80'.	2
✓3	Burlington	Burlington Water Dept. No. 3	Layne-New York Co., Inc.	1949	9	90	16	64	64-85	Kmr	10	517	48	PS	A., L.	3
✓4	1 mi. NE of Burlington on Burlington Island	Burlington Water Dept. Test Well No. 2 - Island	Artesian Well Drilling Co.	1952	19	49	6	40	10	Qcm	14	75	8	O	L.	4
✓5	1 mi. N of Burlington on Burlington Island	Burlington Water Dept. No. 2 - Island	do.	1952	20	49	17	33	33-49	Qcm	18	760	13	PS	Concrete casing and screen. A.	5
6	Columbus	Columbus Water Co. No. 2	William Stothoff Co.	1943	73	260	8	240	240-260	Kmr	60	125	40	PS	A.	6
7	1 mi. N. of Crosswicks	Crosswicks Water Co. No. 1	do.	1959	30	299	8	269	269-299	Kmr	15	500	44	PS	A.	7
✓8	Beverly	Delaware River Water Co. No.15	A. C. Schultes & Sons	1951	12	59	12	49	47-57	Kmr	18	1200	14	PS	Drilled to bedrock. A.	8
9	Riverside	do. No.17	do.	1955	21	140	12	97	97-118	Kmr	23	483	70	PS	do. L.	9
10	1 mi. SW of Riverside, at Cambridge	do. No.19	do.	1959	25	143	12	91	89-130	Kmr	14	974	59	PS	do L.	10
11	Marlton	Evesham Tp. Water Dept. No. 1	A. G. Dunphey	1897	115	212	6	--	------	Ket	42	100	36	PS	A., L.	11
12	Marlton	do. No. 3	Layne-New York Co., Inc.	1956	85	512	12 & 8	369	369-389	Kmr	91	517	168	PS	L.	12
13	Florence	Florence Tp. Water Dept. No.3	do.	1949	25	162	16	123	123-138	Kmr	24	620	34	PS	Drilled to bedrock. A., L.	13
14	2 mi. S of Wrightstown	Fort Dix No. 1	Artesian Well Drilling Co.	1941	138	980	20,16,& 10	920	916-960	Kmr	132	800	96	PS	A.	14
15	1 mi. S of Wrightstown	do. No. 2	do.	1941	131	1051	do.	1030	1030-1051	Kmr	123	900	61	PS	A., L.	15
16	3 mi. S of Wrightstown	do. No. 4	Layne-New York Co., Inc.	1943	148	1096	do.	1056	1056-1086	Kmr	140	700	70	PS	A., L.	16
17	3 mi. NE of Browns Mills at Hanover Lake	do. No. 11	William Stothoff Co.	1943	85	485	6	470	470-980	Ket	20	45	193	PS	L.	17
18	1 mi. E of Wrightstown	McGuire Air Force Base - A	A. C. Schultes & Sons	1953	128	1100	24,16,& 10	992	992-1055	Kmr	120	913	63	PS	Drilled to weathered bedrock. A., L.	18
19	2 mi. E of Wrightstown	do. - C	do.	1953	102	1123	do.	1036	1036-1089	Kmr	110	900	45	PS	Drilled to weathered bedrock. A., L.	19
20	2 mi. SE of Wrightstown	do. - D	do.	1953	112	1120	do.	1012	1012-1075	Kmr	110	925	34	PS	Drilled to weathered bedrock. A.	20
21	3 mi. SW of Medford, at Lake Pine	Lakes Water Co. No. 2	J. Henry Robbins	1950	52	200	6	180	(none)	Kmr	20	100	--	PS	A., L.	21
✓22	Levittown	Levitt and Sons, Inc. No. 2	A. C. Schultes & Sons	1955	29	363	20,16,& 12	225	225-354	Kmr	22	1404	65	U	Screen blanks 246-292 and 315-344. L.	22
	do.	do. No. 3	C. W. Lauman Co., Inc.	1959	28	381	do.	203	203-303	Kmr	25	1530	67	PS	Screen blank 238-283.	23

Page 4

Table 2.--Records of selected wells in Burlington County, N. J.--Continued

Map no.	Location	Owner or name and number	Driller	Year completed	Altitude of land surface (feet)	Total depth drilled (feet)	Well diameter (inches)	Casing length (feet)	Screen setting (feet)	Water-bearing formation	Static water level below land surface (feet)	Yield (gpm)	Drawdown (feet)	Use	Remarks	Well no.
24		No. 4	A. C. Schultes & Sons	1958	28	284	do.	177	196-279	Kmr	21	1438	88	PS	Screen blank 216-259. A., L.	24
25	do.	do. No. 5	do.	1958	39	269	do.	230	230-256	Kmr	37	1421	144	PS	A., L.	25
26	do.	do. No. 7	C. W. Lauman Co., Inc.	1958	19	306	do.	179	179-255	Kmr	17	1421	56	PS	A., L.	26
27	do.	do. No. 12	A. C. Schultes & Sons	1955	40	526	---	(none)	(none)	---	--	---	--	U	Abandoned. Drilled as a test hole. L.	27
28	3 mi. S of Mount Holly, at Lumberton	Lumberton Light, Water and Sewage Co. No. 1	Artesian Well Drilling Co.	1928	10	404	10,8,& 6	360	360-401	Kmr	22	100	--	PS	A., L.	28
29	Maple Shade	Maple Shade Tp. Water Dept.	Uriah White	1893	55	375	---	--	-----	Kmr	--	---	--	PS	Abandoned. L.	29
30	do.	do. No. 4	Artesian Well Drilling Co.	1955	10	282	20 & 12	211	211-272	Kmr	19	1020	42	PS	L.	30
31	Medford	Medford Water Co. No. 3	Layne-New York Co., Inc.	1957	48	590	12 & 8	506	506-536	Kmr	48	517	86	PS	L.	31
32	Moorestown	Moorestown Tp. Water Dept. No. 1	do.	1923	20	497	12,8,& 6	350	350-372	Kmr	28	450	114	PS	Drilled to bedrock. A.,L.	32
33	Mount Holly	Mount Holly Water Co. No. 3	Layne-New York Co., Inc.	1953	11	380	16 & 10	316	316-346	Kmr	64	1200	132	PS	A.	33
34	do.	Mount Holly Water Co.	Thomas B. Harper	1900	20	562	8	---	---	Kmr	--	---	---	PS	Abandoned. L.	34
35	Pemberton	Pemberton Water Dept. No. 1	A. L. Lyons	1939	80	206	12 & 8	155	155-185	Kmr	30	168	51	PS	A., L.	35
36	Browns Mills	Pemberton Tp. Water Dept.No.2	Charles Bainbridge	1947	63	282	8	257	(none)	Kmr	18	187	27	PS	A.	36
37	do.	do. No.3	Thomas Magee	1955	112	303	8	277	277-303	Kmr	47	250	51	PS	L.	37
38	do.	do. No.4	Layne-New York Co.,Inc.	1960	93	402	12 & 8	294	294-334	Kmr	60	500	141	PS	A., L.	38
39	4 mi. W of Mount Holly at Rancocas Woods	Rancocas Woods Water Co.No.1	Charles L. Mollitor, Inc.	1954	50	248	6	237	237-248	Kmr	50	150	5	PS	L.	39
40	Palmyra	Riverton-Palmyra Water Co.No.8	A. C. Schultes & Sons	1955	13	100	16	64	64-84	Kmr	26	503	32	PS	Drilled to weathered bed-rock. A., L.	40
41	1 mi. E of Pemberton at Sunbury Village	Sunbury Village Water Co.No.1	William Stothoff Co.	1953	62	198	8	178	178-198	Kmr	17	252	119	PS	A.	41
42	2 mi. SE of Bordentown	Norman F. Scattergood	Theodore Ziegenfuss	1952	72	362	6	348	348-359	Kmr	60	60	40	D	Farm use also. L.	42
43	1 mi. E of Bordentown	Mrs. Helen Swayze	William L. Bainbridge	1952	92	279	6	274	274-279	Kmr	68	15	---	D		43
44	1 mi. S of Bordentown on U.S. Hwy. 130	National Guard Shops	Louis Bainbridge	1952	83	230	6	---	---	Kmr	--		---	CI	L.	44
45	2 mi. NE of Burlington	Hercules Powder Co. No. 1	Layne-New York Co., Inc.	1946	22	146	10	105	105-135	Kmr	10	520	21	CI	Drilled to bedrock. A.,L.	45
46	do.	do. No.1-test	do.	1945	13	132	3	94	94-104	Kmr	5	---	---	O	Drilled to bedrock.	46
47	do.	do. No.3-test	do.	1945	16	121	3	94	94-104	Kmr	14	---	---	O	do. A.	47
48	2 mi. SW of Burlington on U.S. Hwy. 130	Edgar B. Heisler	Charles L. Mollitor,Inc.	1958	30	215	10	185	185-215	Kmr	33	600	82	Irr	L.	48
49	1 mi. SW of Burlington on U.S. Hwy. 130	Carroll Murphy	do.	1950	35	83	8	64	64-82	Kmr	15	250	45	Irr	L.	49
50	2 mi. SE of Burlington	Masonic Home	American Well Drilling Co.	1921	79	395	8	174	174-194	Kmr	65	150	45	U	A., L.	50
51	3 mi. E of Burlington	William Donald	Charles L. Mollitor,Inc.	1955	42	111	10	72	72-106	Kmr	26	275	14	Irr	L.	51
52	3 mi. SE of Burlington on Oxmead Rd.	Russell H. Deacon	W. R. Clair	1958	62	208	4	203	203-208	Kmr	62	30	---	D		52
53	3 mi. SE of Burlington	Roy F. Main	E. Weik	1959	67	215	4	207	207-215	Kmr	60	30	5	D		53
54	3 mi. SE of Burlington on Oxmead Rd.	Cherry Hill Inn Farm No. 1	Charles L.Mollitor,Inc.	1950	72	208	6	199	199-206	Kmr	82	10	36	D	Farm use also. L.	54
55	2 mi. SW of Burlington	Frank Pino	Edward Robbins	1950	63	228	8 & 6	208	208-228	Kmr	60	300	30	Irr	Pump capacity is 400 gpm.L.	55

Page 5

Table 2.--Records of selected wells in Burlington County, N. J.--Continued

Well no.	Location	Owner or name and number	Driller	Year completed	Altitude of land surface (feet)	Total depth drilled (feet)	Well diameter (inches)	Casing length (feet)	Screen setting (feet)	Water-bearing formation	Static water level below land surface (feet)	Yield (gpm)	Drawdown (feet)	Use	Remarks	Well no.
56	1 mi. SW of Florence	National Gypsum Co. No. 2	Layne-New York Co., Inc.	1955	22	157	12 & 8	113	113-123	Kmr	21	183	21	Ind	Drilled to bedrock. L.	56
57	2 mi. SW of Burlington on U.S. Hwy. 130	Mechanics National Bank No. 2	Charles L. Mollitor, Inc.	1958	35	209	4	189	189-209	Kmr	30	180	27	CI	Air conditioning recharge well.	57
58	1 mi. S of Burlington	Charles Heal, Jr.	do.	1955	50	80	8	59	59-80	Kmr	36	400	50	Irr	Water pumped into irrigation pond. L.	58
59	2 mi. SW of Burlington	Anthony Cannuli	Edward Robbins	1950	66	173	6	153	153-173	Kmr	55	200	30	Irr	Water pumped into irrigation pond.	59
60	2 mi. SW of Burlington on U.S. Hwy. 130	Albert Heisler	do.	1950	46	252	8	212	212-252	Kmr	41	500	42	Irr	Pump capacity is 500 gpm.	60
61	11 mi. S of Chatsworth, at Harrisville	Harrisville well	--	1866	15	375	8	---	---	Tkw	(flowing)	---	---	U	Well is still flowing. A., L.	61
62	2 mi. NE of Bordentown	N.J. State Reformatory No. 4	Layne-New York Co., Inc.	1951	97	454	12 & 8	357	357-387	Kmr	86	503	36	U	A., L.	62
63	4 mi. SE of Bordentown, at Chesterfield	H. W. Briel	Howard Farmer	1959	93	272	4	266	266-272	Kmr	72	50	10	D		63
64	1 mi. SW of Chesterfield, on Whitepine Rd.	Ralph J. DeMarco	Louis Bainbridge	1958	82	393	4	388	388-392	Kmr	75	4	45	D		64
65	3 mi. SE of Bordentown, on Old York Rd.	Ernest Liptak	Greenhalgh & Kaye	1957	114	214	4	208	208-214	Kmr	100	10	20	D		65
66	2 mi. N of Wrightstown	Jacob Dana Packing Co. No. 3	do.	1958	208	276	6	255	255-276	Ket	100	60	80	CI	L.	66
67	7 mi. N of Wrightstown, on Ellisdale Rd.	Francis D. Gray	Louis Bainbridge	1960	92	329	6	319	319-325	Kmr	75	40	5	D	Used for swimming pool also. A., L.	67
68	8 mi. N of Wrightstown, on Ellisdale Rd.	John Marinoas	Greenhalgh & Kaye	1954	97	208	6	204	204-208	Kmr	80	25	69	D	L.	68
69	4 mi. N of Wrightstown	Joseph S. Kucowski	do.	1957	104	149	6	143	143-149	Ket	38	10	7	D		69
70	2 mi. NE of Riverton	Hoeganaes Sponge Iron Co.	Layne-New York Co., Inc.	1951	35	136	8	119	119-134	Kmr	16	326	68	CI	Pump capacity is 50 gpm. L.	70
71	3 mi. NE of Mount Holly, on State Route 537	Eastampton School	Charles L. Mollitor, Inc.	1957	73	417	--	407	407-417	Kmr	70	75	30	U	L.	71
72	1 mi. NE of Mount Holly, on North Pemberton Rd.	J. A. Methvin	do.	1953	39	364	6	352	352-363	Kmr	63	30	15	D	L.	72
73	1 mi. NW of Marlton, on Cropwell Rd.	Byron T. Roberts Farms Inc. No. 2	A. C. Schultes & Sons	1957	93	406	18 & 8	322	322-375	Kmr	100	750	80	Irr	Screen blank 348-359. A., L.	73
74	1 mi. W of Marlton, on Old Marlton Pike	David D. Griscom	J. Henry Robbins	1952	98	340	4	320	320-340	Kmr	100	[illegible]	---	D	L.	74
75	2 mi. SE of Marlton	U.S. Army Nike Base, control area well	Edward Robbins, Sr.	1954	84	158	8	138	138-158	Kmr	41	200	43	U		75
76	1 mi. SE of Beverly, on U.S. Highway 130	Earl R. Blyler	Charles L. Mollitor, Inc.	1950	39	117	10	90	90-114	Kmr	14	575	19	Irr	L.	76
77	1 mi. SE of Beverly, on Cooper St.	John W. Heal	do.	1951	36	135	10	107	107-135	Kmr	18	500	89	Irr	A.	77
78	1 mi. SW of Beverly, at Cambridge	Amico Sand and Gravel Co.	do.	1957	15	75	6	27	27-37	Kmr	7	120	11	CI	L.	78
79	1 mi. S of Riverside, on U.S. Hwy 130	Hillside Farms No. 3	A. C. Schultes & Sons	1956	20	112	12	90	90-106	Kmr	6	144	68	CI		79
80	1 mi. SE of Riverside, on U.S. Hwy 130	Holy Cross High School	Charles L. Mollitor, Inc.	1958	82	174	10	154	154-174	Kmr	55	185	20	Irr	L.	80
81	1 mi. E of Riverside, on U.S. Hwy 130	Holiday Lake	do.	1958	25	198	8	188	188-198	Kmr	15	180	---	CI	L.	81

Page 6

Table 2.--Records of selected wells in Burlington County, N. J.--Continued

Well no.	Location	Owner or name and number	Driller	Year completed	Altitude of land surface (feet)	Total depth drilled (feet)	Well diameter (inches)	Casing length (feet)	Screen setting (feet)	Water-bearing formation	Static water level below land surface (feet)	Yield (gpm)	Drawdown (feet)	Use	Remarks	Well no.
182	1 mi. W of Wrightstown	John L. Bond	Greenhalgh & Kaye	1953	143	123	-	--	------	Kmw	13	15	7	D		182
183	2 mi. NW of Wrightstown	Charles B. Hutchinson	Charles L. Mollitor, Inc.	1960	180	134	4	124	124-134	Kmw	54	25	5	D	L.	183
184	2 mi. NE of Browns Mills	Fort Dix No. 10	William Stothoff Co., Inc.	1943	100	449	6	--	------	Ket	26	60	102	PS	A.	184
185	4 mi. SE of Browns Mills, at Whitesbog	Joseph J. White, Inc.	Ridpath & Potter	1914	95	801	10 & 8	498	(none)	Ket	5	45	--	U	L.	185
186	do.	do.	J. W. Jenkins	1959	95	388	6 & 4	376	376-388	Kmw	--	150	--	CI	Pumping level is 90 feet. L.	186
187	4 mi. SE of Pemberton	Francis Bush	Edward Robbins, Sr.	1954	65	273	6	250	250-256	Kmw	28	400	38	Irr		187
188	Chatsworth	Anthony DeMarco Cranberry Plant	Bernard A. Leek	----	99	67	3	—	------	Tch	6	—	—	D	A.	188
189	3 mi. NE of New Gretna, at Lake Absegami	Bass River State Forest		----	20	31	1¼	27	(none)	Tch	3	—	--	PS	A.	189
190	6 mi. NW of New Gretna	Green Bank State Forest Nursery			13	73	8 & 6	53	53-73	Tch	-	150	--	Irr	A.	190
191	New Gretna	Chester Allen			9	232	3	--	------	Tkw	(flowing)	10	4	CI	Static water level is 4 feet above land surface. A.	191
192	Atsion	Lesson Small			51	88	1¼	--	------	Tch	6	—	—	D	A.	192
193	3 mi. N of Atsion, at Indian Mills	Leah Prickett		----	77	60	----	--	------	Tch	-	—	—	D	A.	193
194	4 mi. SW of Pemberton, near Vincentown	Vincentown Water Co.		1923	40	153	8	--	------	Kmw	(flowing)	175	—	PS	Flows 28 gpm at land surface in the spring season. A.	194
195	2 mi. S of Mount Holly, at Lumberton	Electronic Parts Specialty Co.	J. Henry Robbins	1953	33	121	6 & 4	101	101-121	Ket	30	50	--	Ind	A.	195
196	2 mi. W of Medford Lakes, at Taunton Lakes	Taunton Lakes Water Co. No. 1	do.	1950	57	252	6	230	(none)	Kmw	25	300	--	U	Abandoned. A., L.	196
197	Beverly	National Waterproof Papers, Inc.	Charles L. Mollitor, Inc.	1955	38	61	16	41	41-6	Kmr	22	---	—	Ind	Used for cooling.	197
198	2 mi. SE of Riverton	Riverton-Palmyra Water Co. No. 10	A. C. Schultes & Sons	1961	79	308	12	243	243-281	Kmr	75	1051	95	PS	Drilled to weathered bedrock. A., L.	198
199	2 mi NE of Moorestown, on Hartford Rd.	Moorestown Tp. Water Dept. No. 4	Layne-New York Co., Inc.	1959	59	360	12	298	298-338	Kmr	58	715	52	PS	L.	199
200	2 mi NE of Chatsworth	The Superior Zinc Corp.	Artesian Well Drilling Co.	1941	140	153	12	121	121-146	Tch	36	300	50	Ind		200
201	6 mi. E of Chatsworth on State Hwy 72	Cedar Bridge Fire Tower	J. Henry Robbins	1938	200	110	6	---	------	Tch	61	---	--	O	L.	201
202	3 mi. W of Mount Holly	Inductotherm Corp.	Charles L. Mollitor, Inc.	1961	65	444	6	411	411-443	Kmr	80	300	16	Ind	L.	202
203	6 mi. S of Chatsworth, on State Route 563	Arthur Sooy	(Owner)	----	45	30	2	---	------	Tch	-	---	--	D	Driven well. A.	203
204	1 mi. SW of Bordentown at Fieldsboro	Baura Chemical Co., Inc.	A. J. Connelly, Inc.	1960	9	79	---	---	------	Kmr	-	---	—	Ind	A.	204
205	3 mi. NE of Pemberton	Pemberton Tp. High School	Layne-New York Co., Inc.	1959	75	220	6	140	140-150	Kmw	-	---	--	CI	A.	205
206	3 mi. E of Moorestown on Marne Hwy	William Haines, Jr.	Artesian Well Drilling Co.	1958	55	238	8	200	200-238	Ket	-	400	—	Irr	A.	206
207	5 mi. NE of Mount Holly on U.S. Hwy 206	Harry Rupp		----	62	52	4	---	------	Ket	-	---	--	CI	A.	207
208	2 mi. S of Moorestown	Mount Laurel Water Co.	A. C. Schultes & Sons	1961	30	595	12, 8	558	558-589	Kmr	32	548	77	PS	L.	208

Page 7

Page 8

Table 3. – Selected drillers' logs of wells in Burlington County, N. J.

Well no. 3, Burlington Water Department
(Log by Layne-New York Co., Inc.)

	Thickness (feet)	Depth (feet)
	Altitude 9 feet	
Topsoil	1	1
Fill	4	5
Quaternary:		
Cape May Formation:		
Coarse gravel	5	10
Gravel and clay	7	17
Gravel	5	22
Gravel and sand	2	24
White sand and gravel	2	26
Brown sand and clay	7	33
Cretaceous:		
Magothy (?) and Raritan (?) Formations:		
White sand and clay	10	43
Sand, gravel, and sandy clay	8	51
Magothy and Raritan Formations:		
Blue clay	10	61
Clay, gravel, and sand	3	64
Gravel, sand and clay	7	71
Clay, gravel, and sand	2	73
Sand, gravel, and clay	12	85
Quartz sand and blue clay	5	90

Table 3. – Selected drillers' logs of wells in Burlington County, N. J. – Continued

Well no. 4, Burlington Water Department
(Log by Artesian Well Drilling Co.)

Altitude 19 feet

	Thickness (feet)	Depth (feet)
Quaternary:		
Cape May Formation:		
Sand and loam	5	5
Dirty, brown sand	5	10
Coarse sand	5	15
Coarse sand and mud, some gravel	5	20
Coarse sand and medium gravel	5	25
Coarse sand and gravel	5	30
Coarse sand and fine gravel	10	40
Coarse sand and gravel	6	46
Medium and large gravel	2	48
Cretaceous:		
Magothy and Raritan Formations:		
Gray sandy clay	1	49

Table 3. – Selected drillers' logs of wells in Burlington County, N. J. – Continued

Well no. 22, Levitt and Sons Inc.
(Log by A. C. Schultes and Sons)

Altitude 29 feet

	Thickness (feet)	Depth (feet)
Topsoil	5	5
Quaternary:		
Cape May Formation:		
Fine white sand with mica	5	10
Fine to medium, brown sand	15	25
Coarse sand and marl	7	32
Gravel	8	40
Coarse gravel and black clay	5	45
Cretaceous:		
Merchantville Formation:		
Black clay	20	65
Magothy and Raritan Formations:		
Fine to medium, brown sand and clay	5	70
Fine, gray sand	15	85
Fine to medium gray sand with mica and wood	45	130
Medium to coarse sand	10	140
Fine to medium sand	35	175
White clay	19	194
Fine gray sand	51	245
Fine to medium, white sand	10	255
White clay and fine, white sand	10	265
Gray clay	11	276
Gray clay, fine to coarse sand, and gravel	3	279
No sample	11	290
Gray clay	4	294
Fine to coarse, gray sand	29	323
Gray and red clay	15	338
Medium, gray sand	23	361
Early Paleozoic (?):		
Wissahickon Formation:		
Gray weathered rock	2	363

Table 3. – Selected drillers' logs of wells in Burlington County, N. J. – Continued

Well no. 25, Levitt and Sons Inc.
(Log by A. C. Schultes and Sons)

	Thickness (feet)	Depth (feet)
	Altitude 39 feet	
Fill	5	5
Cretaceous:		
Magothy and Raritan Formations:		
Fine, gray sand	29	34
Gray clay	7	41
Fine, gray sand	8	49
Light gray clay	38	87
Fine, gray sand	11	98
Red clay	3	101
Fine, gray sand	58	159
Red clay	28	187
Fine to coarse, gray sand	6	193
Sand	3	196
Light gray clay	14	210
Fine, gray, silty sand	12	222
Gray clay	10	232
Fine gray sand	24	256
Gray sandy clay	12	268
Early Paleozoic (?):		
Wissahickon Formation:		
Weathered rock	1	269

Table 3. – Selected drillers' logs of wells in Burlington County, N. J. – Continued

Well no. 26, Levitt and Sons Inc.
(Log by C. W. Lauman and Co. Inc.)

Altitude 19 feet

	Thickness (feet)	Depth (feet)
Quaternary:		
Cape May Formation:		
Brown sand and gravel	11	11
Cretaceous:		
Merchantville Formation:		
Gray to black, sandy silt with lignite	22	33
Magothy and Raritan Formations:		
Fine to medium, gray sand	14	47
Gray and white clay	15	62
White, sandy clay	4	66
White sand	5	71
Clay	5	76
Red and white clayey sand	10	86
Brown sandy clay	5	91
Fine, brown sand with some gravel	5	96
Fine, white, clayey sand and gravel	5	101
Fine, light brown sand	10	111
Fine to coarse, brown sand with coarse gravel	5	116
Fine clayey sand	7	123
Gravel	1	124
Fine, white sand	2	126
Gray clay	4	130
Fine to coarse, brown sand	10	140
Fine to medium sand	2	142
Clay	1	143
Fine to coarse, brown sand	9	152
Gravel	1	153
Red and gray clay	11	164
Fine, white sand	12	176
Fine to medium, brown sand	5	181
Fine to coarse, white sand	6	187
White sandy clay	5	192
Fine white sand	15	207
Fine gray sand with some clay	10	217
Fine to coarse, gray sand	7	224
Gray clay	3	227
Fine to coarse, gray sand	6	233
Clay	1	234
Fine to medium, gray sand	6	240
Fine to coarse, brown and white sand	5	245
Fine to coarse, gray sand and gravel	10	255
Gray clay	5	260
Red clay	6	266
Early Paleozoic (?):		
Wissahickon Formation:		
Weathered rock	40	306

Table 3. – Selected drillers' logs of wells in Burlington County, N. J. – Continued

Well no. 44, National Guard Maintenance Shop
(Log by Louis M. Bainbridge and Son)

	Altitude 83 feet Thickness (feet)	Depth (feet)
Topsoil	3	3
Quaternary:		
Cape May Formation:		
Yellow clay and sand	17	20
Cretaceous:		
Merchantville Formation:		
Green glauconitic marl	90	110
Magothy and Raritan Formations:		
Glauconitic marl and sand with wood	10	120
Black clay with pyrite and wood	5	125
Black sandy clay	5	130
Gray sand with black and white clay	15	145
Sand and gravel with black clay	10	155
Red and white clay	10	165
White clay	2	167
Gray sand and clay	6	173
Medium sand	12	185
Medium, gray sand	7	192
Black clay	7	199
Gray sand and black clay	1	200
Coarse sand and black clay	10	210
Coarse, gray sand	5	215
Coarse, white and gray sand	10	225
Red and white clay	5	230

Well no. 45, Hercules Powder Co.
(Log by Layne-New York Co., Inc.)

	Altitude 22 feet	
Quaternary:		
Cape May Formation:		
Sand	6	6
Gravel and boulders	32	38
Cretaceous:		
Magothy and Raritan Formations:		
Red clay	39	77
White clay and sand	19	96
Coarse sand and fine gravel	24	120
Clay	7	127
Sand and gravel	8	135
Early Paleozoic (?):		
Wissahickon Formation:		
Mica rock	11	146

Table 3. – Selected drillers' logs of wells in Burlington County, N. J. – Continued

Well no. 48, Edgar B. Heisler
(Log by Charles L. Mollitor Inc.)

	Altitude 30 feet Thickness (feet)	Depth (feet)
Fill	1	1
Quaternary:		
Cape May Formation:		
Dry sand	18	19
Cape May (?) Formation:		
Yellow sand	29	48
Cretaceous:		
Magothy and Raritan Formations:		
Yellow sand and gravel	14	62
Brown sand	9	71
Muddy sand	12	83
Gray clay	9	92
Yellow clay	10	102
White clay	15	117
Yellow sand	3	120
Yellow sand and clay	13	133
Coarse sand and clay	4	137
White clay	20	157
Yellow sand and gravel	7	164
White clay	17	184
Sand and gravel	31	215

Well no. 49, Carroll Murphy
(Log by Charles L. Mollitor Inc.)

	Altitude 35 feet	
Quaternary:		
Cape May Formation:		
Medium to coarse, brown sand and loam	6	6
Medium to coarse sand	10	16
Cretaceous:		
Magothy and Raritan Formations:		
Gray clay	2	18
White clay with sand	7	25
Red clay with sand	5	30
Red and gray clay	8	38
Gray clay with sand and gravel	3	41
Brown sandstone	10	51
Medium to coarse, gray sand	25	76
Fine, white sand	6	82
White clay and white sand	1	83

Table 3. – Selected drillers' logs of wells in Burlington County, N. J. – Continued

Well no. 50, Masonic Home
(Log by American Well Drilling Co.)

	Altitude 79 feet Thickness (feet)	Depth (feet)
Quaternary:		
Pensauken Formation:		
Yellow sandy clay	25	25
Cretaceous:		
Woodbury Clay and Merchantville Formation (undifferentiated):		
Black silty clay	72	97
Magothy and Raritan Formations:		
Dirty, fine sand	12	109
Red clay	42	151
Dirty medium sand	9	160
Clean, fine to coarse, gray sand	13	173
Fine to coarse, gray sand with wood fragments	1	174
Hardpan	1	175
Clay	1	176
Clean, medium sand	8	184
Clean, coarse sand and fine gravel	2	186
Clay	1	187
Clean, fine gravel	5	192
Clean, medium to coarse gravel	5	197
Clay	1	198
Clean, coarse sand	4	202
Clay	1	203
Clean, coarse sand and fine gravel	30	233
Red and white clay	49	282
White sand	12	294
White clay	22	316
Water-bearing sand and gravel	20	336
Red clay	59	395

Table 3. – Selected drillers' logs of wells in Burlington County, N. J. – Continued

Well no. 55, Frank Pino
(Log by Edward Robbins)

	Altitude 63 feet Thickness (feet)	Depth (feet)
Cretaceous (?):		
Merchantville (?) Formation:		
Sand	30	30
Magothy (?) and Raritan (?) Formations:		
Light-gray clay	50	80
Cretaceous:		
Magothy and Raritan Formations:		
Sand	1	81
Clay	1	82
No sample	8	90
Water-bearing sand	10	100
Sand and clay	49	149
Water-bearing sand and clay streaks	20	169
Clay and sand	31	200
Red clay	7	207
White sand and gravel	20	227

Well no. 56, National Gypsum Co.
(Log by Layne-New York Co., Inc.)

	Altitude 22 feet	
Topsoil	1	1
Quaternary:		
Cape May Formation:		
Red sand and clay	9	10
Brown sand and gravel	11	21
Coarse sand and gravel	10	31
Cretaceous:		
Magothy and Raritan Formations:		
White and yellow sandy clay	6	37
Coarse, yellow sand and gravel with streaks of yellow clay	11	48
Yellow and white sandy clay with some gravel	12	60
Red and white clay	28	88
White sandy clay	22	110
Brown sand and coarse gravel	14	124
White clay	2	126
Coarse sand	4	130
White and yellow clay	10	140
Early Paleozoic (?):		
Wissahickon Formation:		
Mica rock	17	157

Table 3. – Selected drillers' logs of wells in Burlington County, N. J. – Continued

Well no. 58, Charles Heal, Jr.
(Log by Charles L. Mollitor Inc.)

Altitude 50 feet

	Thickness (feet)	Depth (feet)
Quaternary:		
Cape May Formation:		
Sand	1	1
Dry sand	4	5
Sand	14	19
Gravel	2	21
Cretaceous:		
Merchantville Formation:		
Black marl	33	54
Magothy and Raritan Formations:		
Sand	17	71
Gravel	9	80

Well no. 61, Harrisville
(Log by Mahlon Broon [3])

Altitude 15 feet

	Thickness (feet)	Depth (feet)
Tertiary:		
Cohansey Sand:		
Sand	77	77
Sand	8	85
Blue mud	13	98
Clay (with pyrite?)	10	108
Marly mud	16	124
Strata with wood (?)	7	131
Mud with shells	15	146
Hard sediments	50	196
Water-bearing sand	35	231
Dark, slushy sand	14	245
Yellow sand	16	261
Coarse, red sand	45	306
Dark sand	12	318
White clay	13	331
Kirkwood Formation:		
Water-bearing, green marl	37	368
Slate stone (?)	7	375

[3] Smock, 1893, p. 288-289

Table 3. – Selected drillers' logs of wells in Burlington County, N. J. – Continued

Well no. 74, David D. Griscom
(Log by J. Henry Robbins)

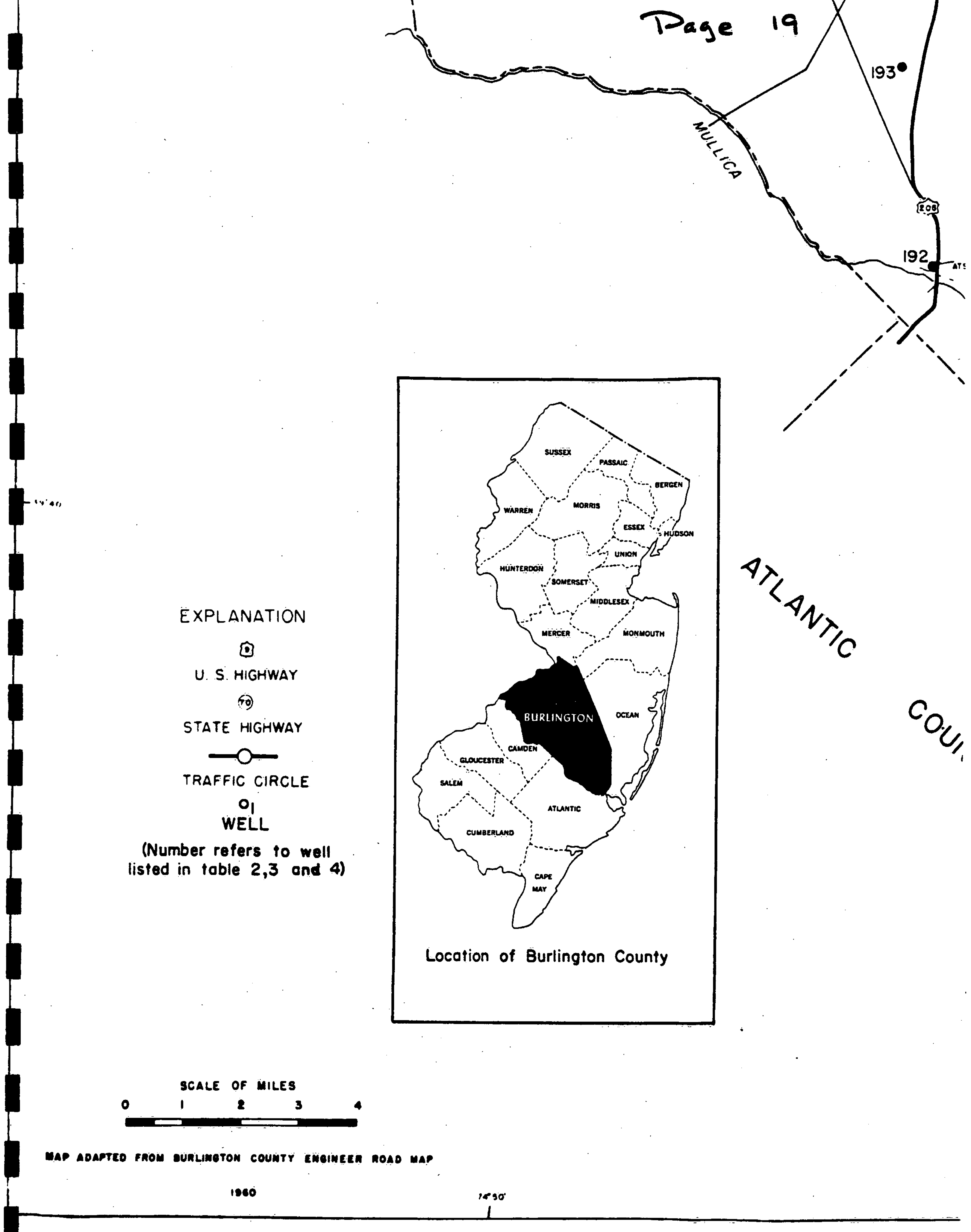
Altitude 92 feet

	Thickness (feet)	Depth (feet)
Quaternary:		
Pensauken Formation:		
Yellow clay	20	20
Cretaceous:		
Navesink Formation:		
Black mud	50	70
Undifferentiated:		
Green marl	80	150
Hard, black clay	120	270
Green clay	30	300
Magothy (?) and Raritan (?) Formations:		
Black and gray clay	20	320
Magothy and Raritan Formations:		
White sand	20	340

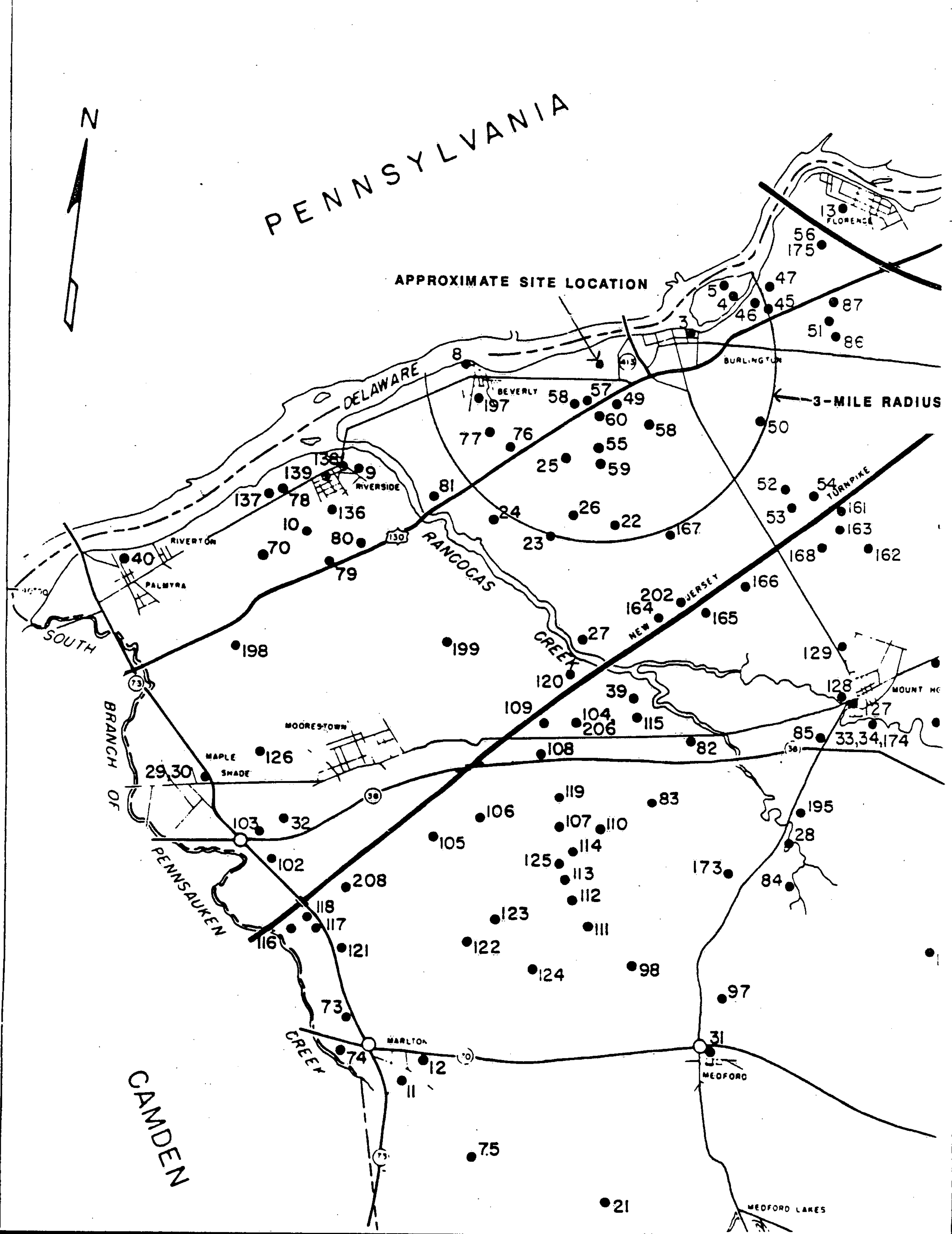
Well no. 76, Earl R. Blyler
(Log by Charles L. Mollitor, Inc.)

Altitude 39 feet

Topsoil	1	1
Quaternary:		
Cape May Formation:		
Medium to coarse, yellow sand	7	8
Medium, brown sand	5	13
Water-bearing, brown sand	7	20
Coarse, brown sand and gravel	8	28
Very coarse sand and gravel	10	38
Cretaceous:		
Magothy and Raritan Formations:		
Grayish-white sandy clay	10	48
Fine, yellow sand, clay, and hardpan	2	50
Fine, yellow sand	11	61
Medium to coarse, dark yellow sand	7	68
White clay with iron-stained sand	2	70
White clay, sand, and hardpan	6	76
Water-bearing, medium to coarse, yellow sand	6	82
Yellowish-white sand	8	90
Medium to coarse, light tan sand	2	92
Coarse, light tan sand with clay	10	102
Water-bearing, medium to coarse, light tan sand and gravel	15	117


193
MULLICA
208
192
ATLANTIC
EXPLANATION
9
U. S. HIGHWAY
70
STATE HIGHWAY
TRAFFIC CIRCLE
WELL
(Number refers to well listed in table 2,3 and 4)
SUSSEX
PASSAIC
BERGEN
WARREN
MORRIS
ESSEX
HUDSON
UNION
HUNTERDON
SOMERSET
MIDDLESEX
MERCER
MONMOUTH
BURLINGTON
OCEAN
CAMDEN
GLOUCESTER
SALEM
ATLANTIC
CUMBERLAND
CAPE MAY
Location of Burlington County
SCALE OF MILES
0 1 2 3 4
MAP ADAPTED FROM BURLINGTON COUNTY ENGINEER ROAD MAP
1960
74°30'

Page 20


N
PENNSYLVANIA
APPROXIMATE SITE LOCATION
3-MILE RADIUS
DELAWARE
FLORENCE
BURLINGTON
BEVERLY
RIVERSIDE
RIVERTON
PALMYRA
RANCOCAS
CREEK
NEW JERSEY
TURNPIKE
SOUTH
BRANCH
OF
PENNSAUKEN
CREEK
MOORESTOWN
MAPLE SHADE
MOUNT HO
MARLTON
MEDFORD
MEDFORD LAKES
CAMDEN
130
413
73
38
70

REFERENCE #5

USGS WELL INVENTORY
(WELLS > 75 gpm)
BURLINGTON COUNTY

05[redacted]	[redacted] 2401	[redacted]	[redacted]	[redacted]	NJ WATER CO	DVWC 15	[redacted]		P	P	F
050039	[redacted]	[redacted]	[redacted]	[redacted] CITY	NJ WATER [redacted]	DV[redacted]	01/01/1910 Z		P	U	S
050040	400405074551701	400405	745517	BEVERLY CITY	NJ WATER CO	DVWC 2	01/01/1910 Z		P	U	S
050041	400406074551901	400406	745519	BEVERLY CITY	BORDENTOWN W D	GILDER FIELD 1	05/13/1955 W		P	P	S
050042	400846074421201	400846	744212	BORDENTOWN CITY	OCEAN SPRAY INC	OCEAN 1	06/22/1964 W		N	N	S

SELECTED INFORMATION OF WELLS FROM THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

USGS UNIQUE ID	SITE ID	LATITU	LONGTU	MUNICIPALITY	SITE OWNER	LOCAL IDENTIFIER	DATE COMPLETED	USE OF SITE	ORIG WATER USE	CURR WATER USE	LAT LON ACC
050044	400919074421101	400919	744211	BORDENTOWN CITY	OCEAN SPRAY INC	2-OCEAN SPRAY	04/09/1956	W	N	N	S
050045	400716074422801	400716	744228	BORDENTOWN TWP	SANDMAN MOTEL	SANDMAN 1	/ /	W	H	H	S
050046	400722074415501	400722	744155	BORDENTOWN TWP	SCATTERGOOD, N F		01/01/1952	W	C	D	M
050047	400741074442501	400741	744425	BORDENTOWN TWP	NO AMER SALVAGE	NO AMER 1	/ /	W	N	N	S
050048	400800074430901	400800	744309	BORDENTOWN TWP	NJ DEPT DEFENSE	NAT GUARD 1	01/01/1952	W	H	H	S
050049	400834074411301	400834	744113	BORDENTOWN TWP	SWAYZE, HELEN	SWAYZE D-1	01/01/1952	W	H	H	M
050050	400412074515701	400412	745157	BURLINGTON CITY	GENERAL HOME PR	INDUSTRIES 1	01/01/1953	W	N	N	S
050051	400453074512101	400453	745121	BURLINGTON CITY	BURLINGTON C WD	BCWD 3 1949	11/08/1949	Z	P	U	S
050052	400455074512101	400455	745121	BURLINGTON CITY	BURLINGTON C WD	BCWD 1 1943	05/20/1943	W	P	P	S
050053	400514074502001	400514	745020	BURLINGTON CITY	US PIPE	US PIPE 1	03/17/1971	W	N	N	S
050054	400532074504301	400532	745043	BURLINGTON CITY	BURLINGTON C WD	BCWD 7	08/22/1967	W	P	P	S
050055	400534074505001	400534	745050	BURLINGTON CITY	BURLINGTON C WD	BCWD 6	06/06/1967	W	P	P	S
050056	400535074504501	400535	745045	BURLINGTON CITY	BURLINGTON C WD	BCWD 5	01/01/1953	W	P	P	S
050057	400536074505101	400536	745051	BURLINGTON CITY	BURLINGTON C WD	BCWD 1 1952	01/01/1952	W	P	P	S
050058	400537074502801	400537	745028	BURLINGTON CITY	BURLINGTON C WD	BWD TEST 2	01/01/1952	O	U	U	S
050059	400537074504001	400537	745040	BURLINGTON CITY	BURLINGTON C WD	BCWD 8	01/01/1967	W	P	P	S
050060	400538074505301	400538	745053	BURLINGTON CITY	BURLINGTON C WD	BCWD 2	01/01/1952	W	P	P	S
050061	400540074504801	400540	745048	BURLINGTON CITY	BURLINGTON C WD	BCWD 3 1952	01/01/1952	W	P	P	S
050062	400541074504301	400541	745043	BURLINGTON CITY	BURLINGTON C WD	BCWD 4	01/01/1952	W	P	P	S
050063	400213074510801	400213	745108	BURLINGTON TWP	WILLINGBORO MUA	WMUA 1	01/01/1965	O	U	U	
050064	400234074530701	400234	745307	BURLINGTON TWP	FIRST NATIONAL BANK	BANK 2	01/01/1958	U	A	U	M
050065	400236074485601	400236	744856	BURLINGTON TWP	MAIN, ROY F		01/01/1959	W	H	H	M
050066	400242074483801	400242	744838	BURLINGTON TWP	CHERRY HILL INN	FARM 1	01/01/1950	W	S	S	M
050067	400249074490501	400249	744905	BURLINGTON TWP	DEACON, RUSSELL	DEACON 1	01/01/1958	Z	U	U	S
050068	400254074524701	400254	745247	BURLINGTON TWP	CANNULI, ANTHONY		01/01/1950	W	I	I	M
050069	400301074524201	400301	745242	BURLINGTON TWP	PINO, FRANK	1950	01/01/1950	W	I	I	M
050070	400313074500401	400313	745004	BURLINGTON TWP	BURLINGTON T WD	TEST 1	07/27/1970	T	U	U	M
050071	400313074500402	400313	745004	BURLINGTON TWP	BURLINGTON T WD	1	01/01/1970	O	U	U	M
050072	400313074500403	400313	745004	BURLINGTON TWP	BURLINGTON T WD	2	01/01/1970	O	U	U	M
050073	400313074500404	400313	745004	BURLINGTON TWP	BURLINGTON T WD	OBS 3	01/01/1970	O	U	U	M
050074	400313074500405	400313	745004	BURLINGTON TWP	BURLINGTON T WD	3	01/01/1974	W	P	P	M
050075	400320074493801	400320	744938	BURLINGTON TWP	KELLER, EARL B	EBK 1	/ /	W	I	I	S
050076	400324074515201	400324	745152	BURLINGTON TWP	HEAL, CHARLES JR	HEAL	01/01/1955	W	I	I	S
050077	400326074493501	400326	744942	BURLINGTON TWP	BURLINGTON T WD	1-1973	01/01/1973	W	P	P	F
050078	400326074531201	400326	745312	BURLINGTON TWP	HOWARD JOHNSON	RESTAURANT 1	/ /	Z	C	U	S
a 050079	400327074493401	400327	744934	BURLINGTON TWP	BURLINGTON T WD	2-1973	01/01/1973	W	P	P	F
050080	400331074531601	400331	745316	BURLINGTON TWP	HEISLER, ALBERT		01/01/1950	W	I	I	M
050081	400331074531701	400331	745317	BURLINGTON TWP	HEISLER, EDGAR B	HEISLER 1	01/22/1958	W	I	I	S
050082	400338074524501	400338	745245	BURLINGTON TWP	MURPHY, ALBERT	FOX HILL FARM	01/01/1950	W	I	I	S
050083	400340074494201	400340	744942	BURLINGTON TWP	MASONIC HOME	MASONIC 2	01/01/1954	W	T	T	M
050084	400342074494801	400342	744948	BURLINGTON TWP	MASONIC HOME	MASONIC 1	01/01/1921	W	T	T	S
050085	400401074530701	400401	745307	BURLINGTON TWP	BEVERLY RD SCH	1	/ /	W	T	T	S
050086	400404074530101	400404	745301	BURLINGTON TWP	TENNECO CHEM	TENNECO 5	11/20/1964	W	N	N	S

a- matches well record in Ref. 3, pages 14&15

[redacted] 050041	15.00	M	[redacted]	[redacted]	/ [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]			[redacted]	[redacted]	[redacted]
050042	89.00	M	10.00	86.00	05/13/1955	103.00	572.00	355.00	385.00	8.0	30.0	S		0.00	SAND	441.00
050043	51.00	M	10.00	52.00	06/22/1964	66.00	372.00	247.00	267.00	10.0	20.0	S		0.00	SAND	267.00

SELECTED INFORMATION OF WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

USGS UNIQUE ID	ALTITUD	METH ALT MEAS	ALTI-TUDE ACC	WATER LEVEL	DATE LEVEL MEASURED	PRODU-TION LEVEL	DISCHARG	DEPTH FIRST OPENING	BOTTOM LAST OPENING	MIN OPEN DIA	OPEN-ING LENGT	TYPE OPEN -ING	TYPE OPEN MAT	BEDROCK DEPTH	BEDROCK MATERIAL	DEPTH DRILLER LOG
050044	69.00	A	5.00	54.00	04/09/1956	69.00	145.00	145.00	160.00	6.0	15.0	S		0.00		160.00
050045	85.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050046	72.00		0.00	60.00	/ /	100.00	60.00	348.00	359.00	4.0	11.0	S		0.00		362.00
050047	7.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050048	83.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		230.00
050049	92.00		0.00	68.00	11/01/1952	0.00	15.00	274.00	279.00	4.5	5.0	S		0.00		279.00
050050	12.00		0.00	0.00	/ /	0.00	200.00	0.00	0.00	0.0	0.0			0.00		0.00
050051	9.00	M	5.00	10.00	11/08/1949	58.00	517.00	64.00	85.00	16.0	21.0	S		0.00	SAND	90.00
050052	10.00	M	20.00	8.00	05/29/1943	64.00	305.00	57.00	78.00	12.0	21.0	S		0.00		81.00
050053	15.00	M	10.00	7.00	03/17/1971	21.00	200.00	15.00	42.00	8.0	27.0	S		0.00		42.00
050054	23.00	M	20.00	17.00	08/22/1967	32.00	715.00	32.00	48.00	17.0	16.0	S		0.00		50.00
050055	23.00	M	20.00	19.00	06/06/1967	42.00	670.00	33.00	49.00	17.0	16.0	S		0.00		48.00
050056	23.00	M	20.00	13.00	12/01/1952	31.00	920.00	34.00	50.00	17.0	16.0	S		0.00		48.00
050057	20.00	M	20.00	17.00	09/01/1952	29.00	745.00	33.00	49.00	17.0	16.0	S		0.00		49.00
050058	19.00	M	20.00	14.00	11/01/1952	22.00	75.00	38.00	48.00	6.0	10.0	S		0.00		49.00
050059	21.00	M	20.00	18.00	10/01/1967	33.00	715.00	0.00	0.00	0.0	0.0			0.00		0.00
050060	21.00	M	20.00	18.00	10/01/1952	31.00	760.00	33.00	49.00	17.0	16.0	S		0.00		49.00
050061	19.00	M	20.00	15.00	11/01/1952	26.00	1250.00	33.00	49.00	17.0	16.0	S		0.00		48.00
050062	18.00	M	20.00	11.00	12/01/1952	25.00	640.00	27.00	43.00	17.0	16.0	S		0.00		42.00
050063	45.45	L	0.05	48.00	03/01/1966	186.00	150.00	284.00	294.00	6.0	10.0	S		0.00		0.00
050064	35.00		0.00	30.00	/ /	57.00	180.00	189.00	209.00	4.0	20.0	S		0.00		209.00
050065	67.00		0.00	60.00	/ /	65.00	30.00	207.00	215.00	4.0	8.0	S		0.00		0.00
050066	72.00		0.00	82.00	/ /	118.00	10.00	199.00	206.00	5.5	7.0	S		0.00		208.00
050067	62.00	M	10.00	62.00	01/01/1958	0.00	30.00	203.00	208.00	3.7	5.0	S		0.00		208.00
050068	66.00		0.00	55.00	/ /	85.00	200.00	153.00	173.00	6.0	20.0	S		0.00		0.00
050069	63.00		0.00	60.00	/ /	90.00	300.00	208.00	228.00	8.0	20.0	S		0.00		227.00
050070	60.00	M	10.00	68.00	07/27/1970	118.00	250.00	140.00	200.00	6.0	60.0	S		0.00		433.00
050071	50.00	M	10.00	0.00	/ /	0.00	0.00	179.00	184.00	4.0	5.0	S		0.00		225.00
050072	50.00	M	10.00	0.00	/ /	0.00	0.00	179.00	184.00	4.0	5.0	S		0.00		224.00
050073	50.00	M	10.00	0.00	/ /	0.00	0.00	177.00	182.00	4.0	5.0	S		0.00		214.00
050074	50.00	M	10.00	82.00	07/01/1974	109.00	1023.00	0.00	0.00	0.0	0.0			0.00		0.00
050075	75.00	M	20.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050076	50.00	M	10.00	36.00	01/01/1955	86.00	400.00	59.00	80.00	8.0	21.0	S		0.00	SAND	80.00
050077	80.00	M	10.00	65.00	05/01/1973	84.00	510.00	123.00	165.00	12.0	42.0	S		0.00		0.00
050078	35.00	M	20.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
a 050079	80.00	M	10.00	77.00	05/01/1973	89.00	578.00	0.00	0.00	0.0	0.0			0.00		0.00
050080	46.00		0.00	41.00	/ /	83.00	500.00	212.00	252.00	8.0	40.0	S		0.00		0.00
050081	30.00	M	20.00	33.00	01/22/1958	115.00	600.00	185.00	215.00	10.0	30.0	S		0.00		215.00
050082	35.00	M	10.00	15.00	/ /	60.00	250.00	64.00	82.00	8.0	18.0	S		0.00	SAND	83.00
050083	80.00	M	20.00	57.00	02/01/1954	80.00	250.00	193.00	214.00	7.5	21.0	S		0.00		220.00
050084	60.00	M	50.00	65.00	/ /	110.00	150.00	174.00	194.00	8.0	20.0	S		0.00	SAND	395.00
050085	20.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	8.0	0.0			0.00		0.00
050086	18.00	M	5.00	13.00	11/20/1964	50.00	800.00	102.00	132.00	12.0	30.0	S		0.00	SAND	136.00

Page 3

050041	80.00	112CPMY	C	02040201		0.0	W				4941					
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]		W	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]	[redacted]	
050043	267.00	211MRPA	C	02040201	Stothoff, Wm	10.0	W	2805083		00231			8.0	26.57	-1.00	3

SELECTED INFORMATION FROM WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
. BURLINGTON COUNTY

USGS UNIQUE ID	WELL DEPTH	AQUIFER CODE	DATA RELIA-BILITY	HYDRO-LOGIC UNIT	DRILLER	MIN CASING DIA	SITE TYPE	NJDEP PERMIT NUMBER	NJDEP GRID NUMBER	WATER ALLOC NUMBE	STAN INDUS USE	LIFT TYPE	TIME PERIOD PUMPED	SPECIFIC CAPACITY	ALTITUDE WATER LEVEL	MU CI CO
050044	160.00	211MRPA	C	02040201	Stothoff, Wm	6.0	W	2701987	2831262	A289		T	6.0	9.67	15.00	3
050045	0.00	211MRPA	C	00000000		0.0	W						0.0	0.00	0.00	4
050046	259.00	211MRPA	U	02040201	Ziegenfuss	6.0	W						0.0	1.50	12.00	4
050047	0.00	211MRPA	U	02040201		0.0	W						0.0	0.00	0.00	4
050048	230.00	211MRPA	C	02040201		0.0	W		2831287				0.0	0.00	0.00	4
050049	279.00	211MRPA	U	02040201	Bainbridge	6.0	W	2800687	2831347				0.0	0.00	24.00	4
050050	120.00	211MRPA	C	02040201	Stephens, P	0.0	W						0.0	0.00	0.00	5
050051	85.00	211MRPA	C	02040201	Layne NY Co	16.0	W	2700119	2734854	05122	4941		8.0	10.77	-1.00	5
050052	78.00	211MRPA	C	02040201	Lauman Co	12.0	W		2734854	05122	4941	C	9.0	5.45	2.00	5
050053	42.00	211MRPA	C	02040201	Strawber, J	8.0	W	2705342	2734964	00836			8.0	14.29	8.00	5
050054	48.00	211MRPA	C	02040201	Artesian Co	17.0	W	2704845	2734828	05122	4941	T	24.0	47.67	6.00	5
050055	49.00	211MRPA	C	02040201	Artesian Co	17.0	W	2704846	2734828	05122	4941	T	24.0	29.13	4.00	5
050056	50.00	211MRPA	C	02040201	Artesian Co	17.0	W	2700737	2734826	05122	4941	T	24.0	51.11	10.00	5
050057	49.00	211MRPA	U	02040201	Artesian Co	17.0	W	2700651	2734825	05122	4941	T	24.0	62.08	3.00	5
050058	48.00	112CPMY	U	02040201	Artesian Co	6.0	W	2700699	2734825	05122			8.0	9.38	5.00	5
050059	44.00	211MRPA	U	02040201	Artesian Co	0.0	W	2704927		05122	4941		24.0	47.67	3.00	5
050060	49.00	211MRPA	U	02040201	Artesian Co	17.0	W	2700600	2734828	05122	4941	T	24.0	58.46	3.00	5
050061	49.00	211MRPA	C	02040201	Artesian Co	17.0	W	2700685	2734826	05122	4941	T	24.0	113.64	4.00	5
050062	43.00	211MRPA	C	02040201	Artesian Co	17.0	W	2700738	2734834	05122	4941	T	24.0	45.71	7.00	5
050063	294.00	211MRPA	C	02040202	Artesian Co	6.0	W						0.0	1.09	-2.55	6
050064	209.00	211MRPA	U	02040202	Molliter, C	4.0	W	2702917	2744125				0.0	6.67	5.00	6
050065	215.00	211MRPA	U	02040201	Weich, E	4.0	W						0.0	6.00	7.00	6
050066	206.00	211MRPA	U	02040201	Molliter, C	6.0	W	2700169	2744367	10363			0.0	0.28	-10.00	6
050067	208.00	211MRPA	C	02040201	Clair, WR	4.0	W	2702552	2744357			J	0.0	0.00	0.00	6
050068	173.00	211MRPA	U	02040202	Roffins, Ed	6.0	W		2744159	00025			0.0	6.67	11.00	6
050069	228.00	211MRPA	U	02040201	Roffins, Ed	8.0	W		2744156	00024			0.0	10.00	3.00	6
050070	200.00	211MRPA	C	02040201		6.0	W	2705259		01521			144.0	5.00	-8.00	6
050071	184.00	211MRPA	U	02040201	Schultes, AC	4.0	W	2705260		01521			0.0	0.00	0.00	6
050072	184.00	211MRPA	U	02040201	Schultes, AC	4.0	W	2705247		01521			0.0	0.00	0.00	6
050073	182.00	211MRPA	U	02040201	Schultes, AC	4.0	W	2705248		01521			0.0	0.00	0.00	6
050074	270.00	211MRPA	U	02040201	Schultes, AC	0.0	W	2705877		01521	4941		24.0	37.89	-32.00	6
050075	202.00	211MRPA	C	02040201		0.0	W						0.0	0.00	0.00	6
050076	80.00	211MRPA	C	02040201	Molliter, C	8.0	W	3101751		00083		T	28.0	8.00	14.00	6
050077	165.00	211MRPA	C	02040201	Schultes, AC	0.0	W	2705716		01521	4941	T	24.0	26.84	15.00	6
050078	170.00	211MRPA	U	02040201	Libuchi	0.0	W						0.0	0.00	0.00	6
a 050079	224.00	211MRPA	U	02040201	Schultes, AC	0.0	W	2705727		01521	4941		24.0	48.17	3.00	6
050080	252.00	211MRPA	U	02040201	Roffins, Ed	8.0	W	2700196	2744128	00021			0.0	11.90	5.00	6
050081	215.00	211MRPA	U	02040201	Molliter, C	10.0	W	2702664	2744127	00121		T	26.0	7.32	-3.00	6
050082	82.00	211MRPA	C	02040201	Molliter, C	8.0	W		2744129	00018		T	8.0	5.56	20.00	6
050083	214.00	211MRPA	C	02040201	Artesian Co	8.0	W	2701117	2744315				8.0	10.87	23.00	6
050084	194.00	211MRPA	C	02040201	American Co	8.0	W		2744233				0.0	3.33	-5.00	6
050085	0.00		U	02040201		0.0	W						0.0	0.00	0.00	6
050086	132.00	211MRPA	C	02040201	Layne NY Co	18.0	W	2704380		00187			8.0	21.62	5.00	6

Page 4

SELECTED INFORMATION OF WELLS FROM THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

→ Matches well record in Ref. 3, pages 1&2

6

USGS UNIQUE ID	SITE ID	LATITU	LONGTU	MUNICIPALITY	SITE OWNER	LOCAL IDENTIFIER	DATE COMPLETED	USE OF SITE	ORIG WATER USE	CURR WATER USE	LAT LON ACC
050087	400407074524601	400407	745246	BURLINGTON TWP	TENNECO CHEM	TENNECO 5-OBS	01/01/1961	O	U	U	S
050088	400408074524701	400408	745247	BURLINGTON TWP	TENNECO CHEM	TENNECO TEST 1	08/27/1971	T	U	U	F
050089	400409074524701	400409	745247	BURLINGTON TWP	TENNECO CHEM	TENNECO 7	11/11/1971	W	N	N	M
050090	400409074530901	400409	745309	BURLINGTON TWP	TENNECO CHEM	TENNECO 6-OBS	01/01/1961	O	U	U	S
050091	400418074525001	400418	745250	BURLINGTON TWP	TENNECO CHEM	TENNECO 4	11/11/1964	W	N	N	S
050092	400418074525701	400418	745247	BURLINGTON TWP	TENNECO CHEM	TENNECO 1	01/08/1962	W	N	N	F
050093	400418074531101	400418	745311	BURLINGTON TWP	TENNECO CHEM	TENNECO 6	09/26/1961	W	N	N	S
050094	400421074525701	400417	745257	BURLINGTON TWP	TENNECO CHEM	TENNECO 3	05/03/1962	Z	N	U	S
050095	400520074483301	400520	744833	BURLINGTON TWP	DONALD, WILLIAM	DONALD	01/01/1955	W	I	I	S
050096	400522074524701	400522	745247	BURLINGTON TWP	TENNECO CHEM	TENNECO 2	04/12/1962	Z	N	U	M
050097	400524074495101	400524	744951	BURLINGTON TWP	HERCULES POWDER	HERCULES 1	08/01/1946	W	N	N	S
050098	400525074493801	400525	744938	BURLINGTON TWP	HERCULES POWDER	HERCULES 3	05/17/1961	W	N	N	S
050099	400525074495301	400525	744953	BURLINGTON TWP	HERCULES POWDER	LAYNE 2-1951	06/04/1951	W	N	N	F
050100	400535074494101	400535	744941	BURLINGTON TWP	HERCULES POWDER	HERCULES 2	01/01/1946	W	N	N	S
050101	400538074494601	400543	744948	BURLINGTON TWP	HERCULES POWDER	HERCULES 3 OBS	01/01/1945	O	U	U	F
050102	400542074484101	400542	744841	BURLINGTON TWP	COLUMBUS METAL	COLUMBUS	01/01/1970	W	I	I	S
050103	400609074490301	400609	744903	BURLINGTON TWP	HOOKER CHEM CO	HOOKER TEST 2	01/01/1966	T	U	U	S
050104	400611074490001	400611	744900	BURLINGTON TWP	HOOKER CHEM CO	HOOKER 2-OBS	01/01/1966	O	U	U	S
050105	400612074485301	400612	744853	BURLINGTON TWP	HOOKER CHEM CO	PRODUCTION 1	01/01/1966	W	N	N	S
050106	400617074492001	400617	744920	BURLINGTON TWP	HOOKER CHEM CO	HOOKER 2R	11/04/1970	W	N	N	S
050107	400618074485901	400618	744859	BURLINGTON TWP	HOOKER CHEM CO	HOOKER 3-OBS	01/01/1966	O	U	U	S
050108	400632074490401	400632	744904	BURLINGTON TWP	NATIONAL GYPSUM	NAT GYP 1	12/09/1955	W	N	N	M
050109	400632074490402	400632	744904	BURLINGTON TWP	NATIONAL GYPSUM	NAT GYP 2	01/01/1955	W	N	N	S
050110	400632074490403	400632	744904	BURLINGTON TWP	NATIONAL GYPSUM	NAT GYP 3	12/22/1964	W	N	N	S
050111	400346074270901	400346	743709	CHESTERFIELD TWP	RAHILLY,WILLIAM	RAHILLY	05/02/1955	W	H	H	S
050112	400405074270701	400405	743707	CHESTERFIELD TWP	HERBERT, ALLEN	HERBERT D-1	01/25/1956	W	H	H	S
050113	400533074264501	400533	743645	CHESTERFIELD TWP	KUCOWSKI, J S	KUCOWSKI D-1	10/30/1957	W	H	H	M
050114	400606074392301	400606	743923	CHESTERFIELD TWP	DEMARCO, RALPH	DEMARCO	06/24/1958	W	H	H	S
050115	400650074382701	400650	743827	CHESTERFIELD TWP	BRIEL, H W		01/01/1959	W	H	H	M
050116	400703074383201	400708	743836	CHESTERFIELD TWP	CHESTRFD SCHOOL	1	11/06/1957	W	T	T	S
050117	400749074363001	400749	743630	CHESTERFIELD TWP	GRAY, FRANCIS	GRAY 1	01/01/1960	W	H	H	S
050118	400752074394401	400752	743944	CHESTERFIELD TWP	LIPTAK	1	06/19/1957	W	H	H	S
050119	400821074384501	400821	743845	CHESTERFIELD TWP	D'ANGELO, WM	WILKENS FARM 1	01/01/1961	W	I	I	S
050120	400849074375801	400849	743758	CHESTERFIELD TWP	MARINCAS, JOHN	MARINCAS D-1	10/18/1954	W	H	H	M
050121	400934074401901	400934	744019	CHESTERFIELD TWP	NJS REFORMATORY	NJSR 4	11/14/1951	W	T	T	M
050122	400934074401902	400934	744019	CHESTERFIELD TWP	NJS REFORMATORY	NJSR 5	01/01/1964	W	I	I	M
050123	395904075000901	395904	750009	CINNAMINSON TWP	NJ WATER CO	DVWC 28	02/24/1969	W	P	P	S
050124	395906075000601	395906	750006	CINNAMINSON TWP	NJ WATER CO	STEPHENS DR	02/01/1970	W	P	P	S
050125	395929074592201	395929	745922	CINNAMINSON TWP	NJ WATER CO	DVWC 10	09/10/1959	W	P	P	S
050126	395929074592202	395929	745922	CINNAMINSON TWP	NJ WATER CO	DVWC 12-POMONA	07/06/1961	U	U	U	S
050127	395938074581001	395938	745810	CINNAMINSON TWP	NJ WATER CO	RIVERTON 14	04/28/1964	W	P	P	F
050128	395938074581002	395938	745810	CINNAMINSON TWP	NJ WATER CO	DVWC 26	07/15/1964	W	P	P	S
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	RIVERTON CLUB	COUNTRY CLUB 2	01/01/1967	W	I	I	S

Page 5

SELECTED INFORMATION OF WELLS FROM THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

SELECTED INFORMATION OF WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

USGS UNIQUE ID	ALTITUD	METH ALT MEAS	ALTI-TUDE ACC	WATER LEVEL	DATE LEVEL MEASURED	PRODU-TION LEVEL	DISCHARG	DEPTH FIRST OPENING	BOTTOM LAST OPENING	MIN OPEN DIA	OPEN-ING LENGT	TYPE OPEN-ING	TYPE OPEN MAT	BEDROCK DEPTH	BEDROCK MATERIAL	DEPTH DRILLER LOG
050087	10.00	M	0.00	6.00	/ /	0.00	0.00	50.00	60.00	6.0	10.0	S		0.00	SAND	175.00
050088	10.00	M	10.00	33.00	08/27/1971	79.00	210.00	107.00	128.00	6.0	21.0	S		0.00		134.00
050089	10.00	M	10.00	26.00	11/11/1971	49.00	901.00	100.00	130.00	12.0	30.0	S		0.00		0.00
050090	15.00	L	0.50	7.00	/ /	0.00	0.00	55.00	65.00	6.0	10.0	S		0.00		177.00
b 050091	14.00	L	1.00	14.00	11/11/1964	49.00	800.00	82.00	112.00	12.0	30.0	S		0.00	SAND	118.00
050092	10.00	M	10.00	4.00	01/08/1962	56.00	800.00	87.00	117.00	12.0	30.0	S		0.00	SAND	120.00
050093	8.00	M	5.00	9.00	09/26/1961	35.00	430.00	60.00	90.00	12.0	30.0	S		0.00	SAND	165.00
050094	7.00	M	5.00	5.00	05/03/1962	45.00	800.00	97.00	122.00	12.0	25.0	S		0.00	SAND	124.00
050095	42.00	M	10.00	26.00	/ /	40.00	275.00	72.00	106.00	10.0	34.0	S		0.00	SAND	111.00
050096	8.00	M	10.00	4.00	04/12/1962	31.00	800.00	86.00	116.00	12.0	30.0	S		0.00		118.00
050097	22.00	M	10.00	10.00	08/01/1946	31.00	520.00	105.00	135.00	10.0	30.0	S		0.00	SAND	146.00
050098	27.40	L	0.10	34.00	06/22/1961	67.00	750.00	111.00	136.00	12.0	25.0	S		0.00		0.00
050099	20.00	M	10.00	12.00	06/04/1951	26.00	530.00	95.00	115.00	10.0	20.0	S		0.00		140.00
050100	22.00	M	20.00	0.00	/ /	0.00	520.00	105.00	135.00	10.0	30.0	S		0.00		0.00
050101	19.24	L	0.10	13.00	07/01/1953	0.00	0.00	94.00	104.00	3.0	10.0	S		0.00		0.00
050102	40.00	M	20.00	45.00	/ /	0.00	0.00	140.00	145.00	4.0	5.0	S		0.00		0.00
050103	27.00	L	1.00	24.00	04/01/1966	78.00	400.00	134.00	144.00	6.0	10.0	S		0.00		187.00
050104	29.00	M	5.00	24.00	04/01/1966	0.00	0.00	175.00	180.00	3.0	5.0	S		0.00	SAND	0.00
050105	33.00	L	1.00	28.00	04/01/1966	0.00	400.00	172.00	192.00	6.0	20.0	S		0.00		233.00
050106	20.00	M	10.00	33.00	11/04/1970	87.00	524.00	126.00	146.00	10.0	20.0	S		0.00		150.00
050107	17.00	M	5.00	12.00	04/01/1966	0.00	0.00	0.00	0.00	0.0	0.0			0.00	SAND	0.00
050108	22.00		0.00	16.00	12/09/1955	66.00	207.00	118.00	128.00	8.0	10.0	S		0.00		167.00
050109	22.00	M	50.00	15.00	11/01/1955	31.00	219.00	113.00	123.00	8.0	10.0	S	S	0.00	SAND	157.00
050110	22.00	M	50.00	19.00	12/22/1964	48.00	235.00	122.00	142.00	8.0	20.0	S		0.00	SAND	142.00
050111	195.00	M	10.00	58.00	05/02/1955	63.00	10.00	155.00	158.00	4.0	3.0	S		0.00		158.00
050112	170.00	M	10.00	40.00	01/25/1956	60.00	10.00	115.00	129.00	4.0	14.0	S		0.00		129.00
050113	104.00		0.00	38.00	10/30/1957	45.00	10.00	143.00	149.00	4.0	6.0	S		0.00		149.00
050114	85.00	M	10.00	75.00	06/24/1958	120.00	4.00	388.00	392.00	4.0	4.0	S		0.00	SAND	393.00
050115	82.00		0.00	75.00	/ /	120.00	4.00	388.00	392.00	4.0	4.0	S		0.00		0.00
050116	102.00	M	5.00	75.00	11/06/1957	90.00	10.00	247.00	253.00	4.0	6.0	S		0.00	SAND	254.00
050117	92.00	M	10.00	75.00	/ /	80.00	40.00	319.00	325.00	6.0	6.0	S		0.00	SAND	317.00
050118	114.00	M	10.00	100.00	06/19/1957	120.00	10.00	208.00	214.00	4.0	6.0	S		0.00	SAND	214.00
050119	100.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050120	97.00		0.00	80.00	10/18/1954	149.00	25.00	204.00	208.00	6.0	4.0	S		0.00		208.00
050121	97.00		0.00	90.00	11/14/1951	126.00	503.00	357.00	387.00	8.0	30.0	S		0.00		454.00
050122	75.00	M	10.00	77.00	/ /	0.00	520.00	337.00	367.00	8.0	30.0	S		0.00		372.00
050123	25.00	M	10.00	32.00	02/24/1969	70.00	1200.00	226.00	261.00	12.0	35.0	S		0.00		264.00
050124	30.00	M	20.00	36.00	02/01/1970	53.00	1002.00	221.00	267.00	12.0	46.0	S		0.00		267.00
050125	79.00	M	10.00	73.00	09/10/1959	168.00	1051.00	239.00	281.00	12.0	42.0	S		0.00	SAND	308.00
050126	73.00	M	10.00	68.00	07/06/1961	127.00	900.00	157.00	196.00	10.0	39.0	S		0.00	SAND	201.00
050127	35.00		5.00	38.00	04/28/1964	100.00	1266.00	179.00	229.00	12.0	50.0	S		0.00	SAND	325.00
050128	35.00	M	10.00	39.00	07/15/1964	77.00	1060.00	0.00	0.00	0.0	0.0			0.00		0.00
[illegible]	[illegible]	M	[illegible]	[illegible]	[illegible]	0.00	0.00	0.00	0.00	0.0	0.0			0.00		175.00

Page 6

SELECTED INFORMATION OF WELLS IN THE GROUND WATER SITE ...

SELECTED INFORMATION FROM WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

USGS UNIQUE ID	WELL DEPTH	AQUIFER CODE	DATA RELIA-BILITY	HYDRO-LOGIC UNIT	DRILLER	MIN CASING DIA	SITE TYPE	NJDEP PERMIT NUMBER	NJDEP GRID NUMBER	WATER ALLOC NUMBE	STAN INDUS USE	LIFT TYPE	TIME PERIOD PUMPED	SPECIFIC CAPACITY	ALTITUDE WATER LEVEL	MU CI CO
050087	60.00	211MRPA	C	02040201	Stothoff, Wm	6.0	W	2703694		00187			0.0	0.00	4.00	6
050088	128.00	211MRPA	C	02040201	Layne NY Co	8.0	W	2705426		00187			8.0	4.57	-23.00	6
050089	130.00	211MRPA	U	02040201	Layne NY Co	12.0	W	2705458		00187		T	8.0	39.17	-16.00	6
050050	65.00	211MRPA	C	02040201	Layne NY Co	6.0	W	2703695		00187			0.0	0.00	8.00	6
050091	112.00	211MRPA	C	02040201	Layne NY Co	12.0	W	2704379		00187			8.0	22.86	0.00	6
050092	117.00	211MRPA	C	02040201	Layne NY Co	12.0	W	2703815		00187			8.0	15.38	6.00	6
050093	90.00	211MRPA	C	02040201	Stothoff, Wm	12.0	W	2703696		00187			48.0	16.54	-1.00	6
050094	122.00	211MRPA	C	02040201	Layne NY Co	12.0	W	2703817		00187			8.0	20.00	2.00	6
050095	106.00	211MRPA	U	02040201	Stephens, P	10.0	W	2701499	2734917	00081			16.0	19.64	16.00	6
050096	116.00	211MRPA	U	00000000	Layne NY Co	12.0	W	2703816		00187			8.0	29.63	4.00	6
050097	135.00	211MRPA	C	02040201	Layne NY Co	10.0	W		2734917	00054			0.0	24.76	12.00	6
050098	136.00	211MRPA	C	02040201	Layne NY Co	12.0	W	2703568	2734918	00173			8.0	22.73	-6.60	6
050059	115.00	211MRPA	U	02040201	Layne NY Co	10.0	W	2700209	2734915	00054			8.0	37.86	8.00	6
050100	135.00	211MRPA	C	02040201	Layne NY Co	0.0	W						0.0	0.00	0.00	6
050101	104.00	211MRPA	C	02040201	Layne NY Co	3.0	W						0.0	0.00	6.24	6
050102	145.00	211MRPA	C	02040201		4.0	W						0.0	0.00	-5.00	6
050103	144.00	211MRPA	C	02040201	Layne NY Co	8.0	W	2704697	2734688	2229P		T	51.0	7.41	3.00	6
050104	180.00	211MRPA	C	02040201	Layne NY Co	4.0	W	2704698	2734688	2229P			0.0	0.00	5.00	6
050105	192.00	211MRPA	C	02040201	Layne NY Co	8.0	W	2704690	2734688	2229P		T	0.0	0.00	5.00	6
050106	146.00	211MRPA	C	02040201	Layne NY Co	10.0	W	2705263	2734688	2229P		T	8.0	9.70	-13.00	6
050107	114.00	211MRPA	C	02040201	Layne NY Co	0.0	W						0.0	0.00	5.00	6
050108	128.00	211MRPA	U	02040201	Layne NY Co	8.0	W	2701772	2734681	00105			8.0	4.14	6.00	6
050109	123.00	211MRPA	C	02040201	Layne NY Co	8.0	W	2701773	2734676	00014		T	8.0	13.69	7.00	6
050110	142.00	211MRPA	C	02040201	Layne NY Co	12.0	W	2704436		00105			8.0	8.10	3.00	6
050111	158.00	211MLRW	U	02040201	Greenhalgh	4.0	W	2801623					0.0	2.00	137.00	7
050112	129.00	211MLRW	U	02040201	Greenhalgh	4.0	W	2801983	2842222				0.0	0.50	130.00	7
050113	149.00	211EGLS	U	02040201	Greenhalgh	4.0	W	2802849	2832837				0.0	1.43	66.00	7
050114	392.00	211MRPA	C	02040201	Bainbridge	4.0	W	2802901	2832479				6.0	0.09	10.00	7
050115	392.00	211MRPA	U	02040201	Farmer, H	4.0	W	2803416					0.0	0.09	7.00	7
050116	253.00	211MRPA	C	02040201	Greenhalgh	4.0	W	2802847	2832464				0.0	0.67	27.00	7
050117	325.00	211MRPA	C	02040201	Bainbridge	6.0	W		2832531				0.0	8.00	17.00	7
050118	214.00	211MRPA	C	02040201	Greenhalgh	4.0	W	2802575	2832412				0.0	0.50	14.00	7
050119	305.00	211MRPA	C	02040201	Bainbridge	0.0	W		2832186				0.0	0.00	0.00	7
050120	208.00	211MRPA	U	02040201	Greenhalgh	6.0	W	2801448	2832165				0.0	0.36	17.00	7
050121	387.00	211MRPA	C	02040201	Layne NY Co	8.0	W	2800249	2831358			T	14.0	13.97	7.00	7
050122	367.00	211MRPA	C	02040201	Layne NY Co	8.0	W						14.0	0.00	-2.00	7
050123	261.00	211MRPA	C	02040202	Schultes, AC	20.0	W	3105321	3102361	01398	4941	T	1.0	31.58	-7.00	8
050124	267.00	211MRPA	C	02040202	Schultes, AC	12.0	W	3105437		01398	4941	T	0.0	58.94	-6.00	8
050125	281.00	211MRPA	C	02040202	Schultes, AC	12.0	W	3103835		01043	4941		8.0	11.06	6.00	8
050126	196.00	211MRPA	C	02040202	Schultes, AC	10.0	W	3104276		01043			8.0	15.25	5.00	8
050127	229.00	211MRPA	C	02040202	Schultes, AC	12.0	W	3104697		01168	4941		24.0	20.42	-3.00	8
050128	225.00	211MRPA	C	02040202	Schultes, AC	0.0	W	3104733		01168	4941		8.0	27.89	-4.00	8
050129	174.00	211MRPA	C	02040202	Layne NY Co	0.0	W	2704844	2742699	2142P		T	0.0	0.00	0.00	8

SELECTED INFORMATION FROM WELLS IN THE GROUND WATER SITE INVENTORY DATABASE

0[redacted]4	[redacted]005[redacted]237[redacted]00005		745237	WILLINGBORO TWP	[redacted] WILLINGBORO MUA	[redacted] WMUA DCB 12	01/01/195_ Z	[redacted]	U	[redacted]	F
050645	400010074521601	400010	745216	WILLINGBORO TWP	WILLINGBORO MUA [redacted]	W[redacted]2	0[redacted]/19[redacted]		[redacted]	U	F
050646	400045074522601	400045	745226	WILLINGBORO TWP	WILLINGBORO MUA	WMUA T1	09/17/1971	Z	U	U	S
050647	400054074534201	400054	745342	WILLINGBORO TWP	RANCOCAS C C	GOLF COURSE 1	11/12/1965	W	I	I	S
050648	400104074540801	400103	745409	WILLINGBORO TWP	WILLINGBORO MUA	WMUA 3-OBS	01/01/1965	O	U	U	F

SELECTED INFORMATION OF WELLS FROM THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

Match wells 5-658 and 5-668 in Ref. 2, pages 10, 13, 14, & 16

USGS UNIQUE ID	SITE ID	LATITU	LONGTU	MUNICIPALITY	SITE OWNER	LOCAL IDENTIFIER	DATE COMPLETED	USE OF SITE	ORIG WATER USE	CURR WATER USE	LAT LON ACC
050649	400122074530801	400122	745308	WILLINGBORO TWP	WILLINGBORO MUA	WMUA 6	06/24/1959	W	P	P	S
050650	400136074515901	400136	745159	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 27	07/05/1955	O	U	U	S
050651	400139074532501	400139	745325	WILLINGBORO TWP	WILLINGBORO MUA	WMUA 9(OLD 3)	01/01/1959	Z	P	U	F
050652	400146074515901	400146	745159	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 26	06/03/1955	O	U	U	S
050653	400152074543501	400152	745435	WILLINGBORO TWP	WILLINGBORO MUA	WMUA 4	10/27/1958	W	P	P	F
050654	400154074521501	400154	745215	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 24	06/22/1955	O	U	U	S
050655	400155074522601	400155	745226	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 25	06/16/1955	O	U	U	S
050656	400155074530801	400156	745201	WILLINGBORO TWP	WILLINGBORO MUA	WMUA 2 (DCB23)	01/01/1955	W	P	P	S
050657	400157074520201	400157	745202	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 11	01/01/1955	O	U	U	S
c 050658	400158074530701	400201	745308	WILLINGBORO TWP	WILLINGBORO MUA	WMUA 7	10/06/1958	W	P	P	F
050659	400219074540701	400219	745407	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 20	05/11/1955				S
050660	400224074540301	400224	745403	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 8	01/01/1955	O	U	U	F
050661	400225074540201	400225	745402	WILLINGBORO TWP	WILLINGBORO MUA	WMUA 1	01/01/1955	W	P	P	F
050663	400228074535701	400228	745357	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 16	01/01/1955	O	U	U	S
050664	400229074541501	400229	745415	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 22	01/01/1955	O	U	U	S
050665	400233074535501	400233	745355	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 17	01/01/1955	O	U	U	S
050666	400236074533601	400236	745336	WILLINGBORO TWP	WILLINGBORO MUA	WMUA 4-OBS	/ /	Z	U	U	F
050667	400250074532101	400250	745321	WILLINGBORO TWP	WILLINGBORO MUA	WMUA 5	04/15/1958	W	P	P	F
d 050668	400308074532501	400308	745325	WILLINGBORO TWP	WILLINGBORO MUA	WMUA DCB 28	06/21/1955	O	U	U	S
050669	400308074534101	400308	745341	WILLINGBORO TWP	GARDEN PLAZA AS	GARDEN PLAZA 1	12/04/1957	U	U	U	S
050670	400320074532001	400320	745320	WILLINGBORO TWP	GARDEN PLAZA AS	LEVITTMARK	04/21/1958	W	C	C	S
050671	394918074321101	394918	743211	WOODLAND TWP	W J BUSBY STORE	BUSBY	/ /				
050672	394558074295001	394558	742950	WOODLAND TWP	TRANSCONTL GAS	TEST HOLE 13	01/01/1951	T	U	U	F
050673	394655074302701	394655	743027	WOODLAND TWP	TRANSCONTL GAS	TEST HOLE 14	01/01/1951	T	U	U	F
050674	394757074335901	394909	743204	WOODLAND TWP	DEMARCO ENT	2-1971	03/01/1971	W	I	I	F
050675	394907074320701	394907	743207	WOODLAND TWP	DEMARCO ENT	CRANBERRY PLT	/ /	W	H	H	S
050676	394914074254401	394914	742546	WOODLAND TWP	US GEOL SURVEY	COYLE AIRPORT	01/01/1961	O	U	U	S
050677	394914074254601	394914	742546	WOODLAND TWP	NJ BUR FORESTRY	OW8 CEDAR BR 8	01/01/1938	O	U	U	S
050678	394940074314301	394940	743143	WOODLAND TWP	ST OF NJ	MULLICA 8S	09/01/1975	O	U	U	S
050679	395011074303001	395011	743030	WOODLAND TWP	SUPERIOR ZINC	ZINC 1	01/01/1941	W	N	N	F
050680	395013074302701	395013	743027	WOODLAND TWP	BATES,LENA	OW38	01/01/1959	W	H	H	S
050681	395019074310601	395019	743106	WOODLAND TWP	TRANSCONTL GAS	TEST HOLE 1	01/01/1951	T	U	U	F
050682	395103074294701	395103	742947	WOODLAND TWP	TRANSCONTL GAS	TEST HOLE 2	01/01/1951	T	U	U	F
050683	395122074301701	395122	743017	WOODLAND TWP	US GEOL SURVEY	BUTLER PLACE 1	09/30/1964	O	U	U	S
050684	395122074301702	395122	743017	WOODLAND TWP	US GEOL SURVEY	BUTLER PLACE 2	01/01/1965	O	U	U	S
050685	395122074311001	395122	743110	WOODLAND TWP	TRANSCONTL GAS	TEST HOLE 4	01/01/1951	T	U	U	F
050686	395130074302801	395130	743028	WOODLAND TWP	TRANSCONTL GAS	TEST HOLE 3	01/01/1951	T	U	U	F
050687	395138074364301	395138	743643	WOODLAND TWP	TRANSCONTL GAS	TEST HOLE 10	01/01/1951	T	U	U	F
050688	395144074310901	395144	743109	WOODLAND TWP	TRANSCONTL GAS	TEST HOLE 8	01/01/1951	T	U	U	F
050689	395150074284201	395152	742848	WOODLAND TWP	US GEOL SURVEY	LEBANON SF 23D	01/01/1955	O	U	U	S
050690	395210074310501	395211	743103	WOODLAND TWP	US GEOL SURVEY	LEBANON SF 2	01/01/1964	O	U	U	S
050691	395210074372601	395210	743726	WOODLAND TWP	TRANSCONTL GAS	TEST HOLE 11	01/01/1951	T	U	U	F
050692	395308074341401	395308	743414	WOODLAND TWP	MAYO,FRANK		12/09/1953	W	H	H	S

Page 8

[redacted]644[redacted]	18[redacted]	L	[redacted].50	[redacted]0.0[redacted]	[redacted]	[redacted]	[redacted]00	[redacted].00	[redacted].00	[redacted].0	[redacted]		[redacted]	[redacted]0.00[redacted]		[redacted]0.[redacted]
050645	40.30	L	0.05	52.00	04/01/1966	182.00	52.00	431.00	441.00	4.0	10.0	S		0.00		0.00
050646	60.00	M	10.00	86.00	09/17/1971	143.00	396.00	334.00	354.00	6.0	20.0	S		0.00		475.00
050647	24.00	M	20.00	41.00	11/12/1965	75.00	515.00	190.00	338.00	10.0	148.0	S		0.00		242.00
050648	34.00	M	20.00	41.00	03/01/1966	107.00	320.00	306.00	316.00	0.0	10.0	S		0.00	SAND	0.00

SELECTED INFORMATION OF WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

USGS UNIQUE ID	ALTITUD	METH ALT MEAS	ALTITUDE ACC	WATER LEVEL	DATE LEVEL MEASURED	PRODUCTION LEVEL	DISCHARG	DEPTH FIRST OPENING	BOTTOM LAST OPENING	MIN OPEN DIA	OPENING LENGT	TYPE OPEN-ING	TYPE OPEN MAT	BEDROCK DEPTH	BEDROCK MATERIAL	DEPTH DRILLER LOG
050649	39.00	M	20.00	39.00	06/24/1959	92.00	1500.00	0.00	0.00	0.0	0.0			0.00		0.00
050650	36.00	M	10.00	50.00	08/06/1966	0.00	0.00	285.00	296.00	6.0	11.0	S		0.00		415.00
050651	28.00	M	10.00	25.00	/ /	92.00	1530.00	203.00	304.00	12.0	101.0	S		0.00		381.00
050652	39.00	L	0.50	30.00	06/03/1955	0.00	0.00	282.00	287.00	5.0	5.0	S		0.00		0.00
050653	28.00	M	10.00	21.00	10/27/1958	109.00	1438.00	177.00	280.00	12.0	103.0	S		0.00	SAND	0.00
050654	29.00	L	0.50	30.00	06/22/1955	0.00	0.00	253.00	264.00	6.0	11.0	S		0.00		267.00
050655	27.00	L	0.50	22.00	06/16/1955	0.00	0.00	245.00	250.00	5.0	5.0	S		0.00		0.00
050656	29.00	M	10.00	22.00	08/01/1955	87.00	1404.00	0.00	0.00	0.0	0.0			0.00		0.00
050657	29.00	L	0.50	29.00	04/01/1955	0.00	0.00	224.00	276.00	12.0	52.0	S		0.00		0.00
c 050658	19.00	M	10.00	17.00	10/06/1958	73.00	1421.00	179.00	255.00	12.0	76.0	S		0.00	SAND	306.00
050659	41.00	M	5.00	37.00	05/11/1955	0.00	0.00	0.00	0.00	0.0	0.0			0.00		214.00
050660	9.00	L	0.50	30.00	04/01/1955	0.00	0.00	235.00	250.00	6.0	15.0	S		0.00		0.00
050661	10.00	M	10.00	1.00	/ /	46.00	990.00	147.00	199.00	16.0	52.0	S		0.00	SAND	202.00
050663	13.00	L	0.50	0.00	/ /	0.00	16.00	181.00	186.00	6.0	5.0	S		0.00		190.00
050664	12.00	M	5.00	0.00	/ /	0.00	0.00	195.00	200.00	6.0	5.0	S		0.00		202.00
050665	20.00	L	0.50	0.00	/ /	0.00	8.00	180.00	185.00	5.0	5.0	S		0.00		198.00
050666	30.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050667	39.00		0.00	36.00	04/15/1958	180.00	1421.00	230.00	256.00	12.0	26.0	S		0.00	SAND	0.00
d 050668	43.00	L	0.50	32.00	06/21/1955	0.00	0.00	222.00	242.00	6.0	20.0	S		0.00	SAND	0.00
050669	30.00	M	10.00	24.00	12/04/1957	42.00	250.00	206.00	242.00	8.0	36.0	S		0.00		242.00
050670	40.00	M	10.00	36.00	04/21/1958	78.00	100.00	199.00	220.00	6.0	21.0	S		0.00		220.00
050671	0.00		0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050672	90.00		0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050673	80.00		0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050674	90.00	M	10.00	15.00	03/03/1971	107.00	4447.00	109.00	179.00	24.0	70.0	S		0.00		226.00
050675	99.00	M	10.00	6.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050676	199.19	L	0.10	78.00	06/01/1962	0.00	0.00	530.00	540.00	0.0	10.0	S		0.00		0.00
050677	200.00	M	5.00	61.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00	SAND	0.00
050678	112.03	A	0.10	17.74	09/01/1975	0.00	0.00	45.00	50.00	2.0	5.0	P	P	0.00	SAND	0.00
050679	140.00	M	10.00	36.00	/ /	86.00	300.00	121.00	153.00	10.0	32.0	S		0.00		0.00
050680	95.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00	SAND	0.00
050681	108.00		0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050682	129.00		0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050683	140.66	M	10.00	144.00	10/20/1964	223.00	45.00	2102.00	2117.00	0.0	15.0	S		0.00	SAND	0.00
050684	140.82	L	0.10	19.00	05/01/1965	0.00	0.00	160.00	170.00	0.0	10.0	S		0.00		0.00
050685	128.00		0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050686	132.00		0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050687	106.00		0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050688	123.00		0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050689	152.02	L	0.10	22.00	11/01/1955	0.00	0.00	33.00	0.00	0.0	0.0	S		0.00		0.00
050690	126.30	L	0.10	9.00	02/01/1964	59.00	250.00	76.00	81.00	6.0	5.0	S		0.00		0.00
050691	109.00		0.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
050692	140.00	M	10.00	37.00	12/09/1953	46.00	15.00	65.00	69.00	4.0	4.0	S		0.00		69.00

Page 9

050644	326.00	211MRPA	C	02040202	Schultes, AC	0.0	W				4941		0.0	0.00	[illegible]	38
[redacted]45	[redacted]41.[redacted]	[redacted]11MR[redacted]	C	[redacted]020[redacted]2	[redacted]sia[redacted]	[redacted]	W	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]40	[redacted].70[redacted]	
050646	354.00	211MRPA	C	02040202	Layne NY Co	8.0	W	2705416					8.0	6.95	-26.00	38
050647	338.00	211MRPA	C	02040202	Schultes, AC	10.0	W	2704616		00343		T	8.0	15.15	-17.00	38
050648	316.00	211MRPA	C	02040202		0.0	W						0.0	4.85	-7.00	38

SELECTED INFORMATION FROM WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

USGS UNIQUE ID	WELL DEPTH	AQUIFER CODE	DATA RELIA-BILITY	HYDRO-LOGIC UNIT	DRILLER	MIN CASING DIA	SITE TYPE	NJDEP PERMIT NUMBER	NJDEP GRID NUMBER	WATER ALLOC NUMBE	STAN INDUS USE	LIFT TYPE	TIME PERIOD PUMPED	SPECIFIC CAPACITY	ALTITUDE WATER LEVEL	MU CI CO
050649	363.00	211MRPA	C	02040202	Schultes, AC	0.0	W	2703066		00880	4941		124.0	28.30	0.00	38
050650	296.00	211MRPA	C	02040202	Schultes, AC	6.0	W	2701728	2744436				0.0	0.00	-14.00	38
050651	304.00	211MRPA	C	02040202		12.0	W	2703110	2744416	00880	4941		0.0	22.84	3.00	38
050652	287.00	211MRPA	C	02040202	Sprague & Co	6.0	W						0.0	0.00	9.00	38
050653	280.00	211MRPA	C	02040202	Schultes, AC	0.0	W	2702941	2743631	00880	4941		48.0	16.34	7.00	38
050654	264.00	211MRPA	C	02040202	Schultes, AC	6.0	W	2701691	2744423				0.0	0.00	-1.00	38
050655	250.00	211MRPA	C	02040202	Sprague & Co	6.0	W		2744421				0.0	0.00	5.00	38
050656	354.00	211MRPA	C	02040202	Schultes, AC	0.0	W	2701690	2744431	00880	4941		8.0	21.60	7.00	38
050657	276.00	211MRPA	C	02040202	Schultes, AC	16.0	W						0.0	0.00	0.00	38
c 050658	255.00	211MRPA	C	02040202	Lauman Co	12.0	W	2702919	2744188	01288	4941		82.0	25.38	2.00	38
050659	202.00	211MRPA	C	02040202	Schultes, AC	6.0	W						0.0	0.00	4.00	38
050660	250.00	211MRPA	C	02040202	Sprague & Co	6.0	W						0.0	0.00	-21.00	38
050661	199.00	211MRPA	C	02040202	Schultes, AC	16.0	W	2301615	2743393		4941		0.0	22.00	9.00	38
050663	186.00	211MRPA	C	02040202	Sprague & Co	6.0	W		2744171	01609			14.0	0.00	0.00	38
050664	200.00	211MRPA	C	02040202	Sprague & Co	6.0	W	2701649	2743393				0.0	0.00	0.00	38
050665	185.00	211MRPA	C	02040202	Sprague & Co	5.0	W						13.0	0.00	0.00	38
050666	121.00	211MRPA	U	02040202		0.0	W						0.0	0.00	0.00	38
050667	256.00	211MRPA	C	02040202	Schultes, AC	16.0	W	2702723	2744158	00880	4941		7.0	9.87	3.00	38
d 050668	242.00	211MRPA	C	02040201	Schultes, AC	6.0	W	2701689	2744146				0.0	0.00	11.00	38
050669	242.00	211MRPA	U	02040201	Lauman Co	8.0	W	2702249	2744142			T	12.0	13.89	6.00	38
050670	220.00	211MRPA	U	02040201	Schultes, AC	6.0	W	2702794	2744145	00036		T	4.0	2.38	-36.00	38
050671	80.00	121CKKD	C	02040301		0.0	W						0.0	0.00	0.00	39
050672	1519.00	211MRPA	U	02040301	Survey Co	0.0	W						0.0	0.00	0.00	39
050673	1519.00	211MRPA	U	02040301		0.0	W						0.0	0.00	0.00	39
050674	179.00	121CKKD	U	02040301	Layne NY Co	24.0	W	3200688		00831		T	8.0	48.34	75.00	39
050675	63.00	121CKKD	C	02040301	Bernard & Co	0.0	W						0.0	0.00	93.00	39
050676	540.00	124MNSQ	C	02040301	Rulen & Cook	0.0	W						0.0	0.00	121.19	39
050677	110.00	121CKKD	C	02040301		0.0	W						0.0	0.00	139.00	39
050678	50.00	121CKKD	C	02040301	ENG DRILL CO	2.0	W						0.0	0.00	94.29	39
050679	153.00	121CKKD	U	02040301	Artesian Co	12.0	W						0.0	6.00	104.00	39
050680	21.00	121CKKD	C	02040301		0.0	W						0.0	0.00	0.00	39
050681	1140.00	211MRPA	U	02040301	Survey Co	0.0	W						0.0	0.00	0.00	39
050682	881.00	211EGLS	U	02040301		0.0	W						0.0	0.00	0.00	39
050683	2117.00	211MRPA	C	02040301	Schultes, AC	0.0	W						8.0	0.57	-3.34	39
050684	170.00	121CKKD	C	02040301	Greenhalgh	0.0	W						0.0	0.00	121.82	39
050685	900.00	211WDBR	U	02040301		0.0	W						0.0	0.00	0.00	39
050686	1207.00	211MRPA	U	02040301		0.0	W						0.0	0.00	0.00	39
050687	928.00	211MRPA	U	02040301		0.0	W						0.0	0.00	0.00	39
050688	902.00	211WDBR	U	02040301		0.0	W						0.0	0.00	0.00	39
050689	33.00	121CKKD	C	02040301		0.0	W						0.0	0.00	130.02	39
050690	81.00	121CKKD	C	02040301	Jenkins, JW	6.0	W						0.0	5.00	117.30	39
050691	954.00	211MRPA	U	02040202		0.0	W						0.0	0.00	0.00	39
050692	69.00	121CKKD	U	02040202	Greenhalgh	4.0	W	3200125	3213173				0.0	1.67	103.00	39

[redacted] 33 [redacted] 0041 [redacted] 282 [redacted] 400 [redacted] 743800 MANSFIELD TWP [redacted] BRIGHT VIEW FAR 3 [redacted] / / W [redacted] T [redacted]

050734 395829074503501 395829 745035 HAINESPORT TWP [redacted] 1R [redacted] 0/1 [redacted] T

050735 395841074480601 395841 744806 LUMBERTON TWP MCGRAW-EDISON 1 05/29/1962 W N N T

SELECTED INFORMATION OF WELLS FROM THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

USGS UNIQUE ID	SITE ID	LATITU	LONGTU	MUNICIPALITY	SITE OWNER	LOCAL IDENTIFIER	DATE COMPLETED	USE OF SITE	ORIG WATER USE	CURR WATER USE	LAT LON ACC
050736	395220074311301	395220	743113	WOODCLAND TWP	LEBANON ST FOR	SAW MILL 1	/ /				S
050737	395749074344801	395749	743448	PEMBERTON TWP	JENKINS & SONS	1961 WELL	04/28/1961				S
050738	400012074390301	400012	743903	PEMBERTON TWP	PEMB TWP SCHLS	2	/ /	W	T	T	S
050739	400150074482001	400150	744820	WESTAMPTON TWP	BC COUNTRY CLUB	2-1966	/ /	W	I	I	S
050740	400216074372101	400216	743721	WRIGHTSTOWN BORO	MCPHERSON	WEST WELL	/ /				S
050741	400218074460402	400218	744604	SPRINGFIELD TWP	LAUREL OAKS ENT	1-1973	/ /	W	N	N	S
050742	400310074531701	400310	745317	EDGEWATER PK TWP	DEL-VUE HOMES	1	01/01/1960	W	P	P	S
050743	400418074515801	400418	745158	BURLINGTON CITY	AMER FOAM RUBER	1960 WELL	/ /	W	N	N	S
050744	395639074295301	395639	742953	PEMBERTON TWP	WHITE J J CO	DOMEST *66	10/07/1966	W	H	H	S
050745	400157074481901	400157	744819	WESTAMPTON TWP	BC COUNTRY CLUB	CLUB 1R	12/01/1974	W	I	I	F
050746	395727074591501	395727	745915	MAPLE SHADE TWP	MAPLE SHADE W D	MSWD 11	02/01/1978	W	P	P	S
050747	395921074524301	395921	745243	MOUNT LAUREL TWP	DITTMAR	1949	01/01/1949				S
050748	395848074540701	395848	745407	MOORESTOWN TWP	USS RANCOCAS	RANCOCAS 1	01/01/1959	W	I	I	F
050749	395508074553901	395508	745539	MOUNT LAUREL TWP	RAMBLEWOOD CC	3 TEE	01/01/1972	W	I	I	F
050750	395534074553201	395534	745532	MOUNT LAUREL TWP	RAMBLEWOOD CC	7 TEE	/ /	W	I	I	F
050751	395546074562201	395546	745622	MOUNT LAUREL TWP	RAMBLEWOOD CC	2 TEE	/ /	W	I	I	F
050752	395247074515702	395247	745157	EVESHAM TWP	EVESHAM M U A	EMUA T 13	10/12/1973	T	U	U	T
050753	400541074364201	400541	743642	CHESTERFIELD TWP	WEIDEL REAL EST	1	/ /	Z	C	U	S
050754	395941074325001	395941	743250	NEW HANOVER TWP	US ARMY	RANGE HQ 7	01/28/1975	W	I	I	F
050755	395049074533801	395049	745338	EVESHAM TWP	KING'S GRANT WC	KGWC 1	02/01/1973	W	P	P	T
050756	400515074334401	400515	743344	NORTH HANOVER TWP	HANOVER C C	CC 1	06/15/1970	W	I	I	T
050757	395326074522301	395326	745223	EVESHAM TWP	EVESHAM M U A	EMUA 6	01/01/1974	W	P	P	F
050758	400418074525501	400418	745255	BURLINGTON TWP	TENNECO CHEM	TENNECO 10	/ /	W	N	N	S
050759	395036074490301	395136	744925	MEDFORD TWP	MEDFORD TWP WD	MTWD 6	07/01/1980	W	P	P	T
e 050760	400417074532701	400417	745327	BURLINGTON TWP	TENNECO CHEM	TENNECO 8	07/22/1980	W	P	P	F
f 050761	400417074532201	400417	745322	BURLINGTON TWP	TENNECO CHEM	TENNECO 9	12/15/1980	W	P	P	F
050762	400418074531102	400418	745311	BURLINGTON TWP	TENNECO CHEM	TEST 1-61	/ /	T	U	U	S
050763	400420074524502	400420	745245	BURLINGTON TWP	TENNECO CHEM	TEST 2	/ /	T	U	U	S
050764	400420074524503	400420	745245	BURLINGTON TWP	TENNECO CHEM	TEST 3	/ /	T	U	U	S
050765	395513074302001	395513	743020	WOODLAND TWP	LEBANON ST FOR	3-U OBS	08/01/1957	O	U	U	T
050766	395227074540101	395227	745401	EVESHAM TWP	LENAPE REG H S	CHEROKEE 1	02/01/1980	W	I	I	T
g 050767	400420074524501	400420	745245	BURLINGTON TWP	TENNECO CHEM	TEST 4	/ /	T	U	U	S
050768	400439074451201	400431	744454	MANSFIELD TWP	LISEHORA, MIKE	GARAGE WELL	01/01/1950	W	H	H	F
050769	395247074292701	395247	742927	WOODLAND TWP	LEBANON ST FOR	16-H OBS	01/01/1957	O	U	U	T
050770	400540074490001	400540	744900	BURLINGTON TWP	BURLINGTON T WD	TEST NO-11	04/01/1978	T	U	U	T
050771	400207074572701	400207	745727	RIVERSIDE TWP	BISHOP'S DAIRY	BISHOP-1	04/23/1956	W	N	N	T
050772	400134074491102	400220	744927	BURLINGTON TWP	NJ TURNPIKE AU	INTERCHANGE 5R	12/11/1954	Z	P	U	S
050773	400113074591301	400113	745913	CINNAMINSON TWP	SANITARY LANDFI	OBS-1	04/03/1974	O	U	U	T
050774	400158074564801	400158	745648	RIVERSIDE TWP	ST PETER'S CHUR	CHURCH-1	02/09/1956	W	P	P	T
050775	400820074422001	400820	744220	BORDENTOWN TWP	BORDENTON DINER	DINER 1	09/20/1955	W	C	C	T
050776	400300074534001	400300	745340	WILLINGBORO TWP	1ST PEOPLES BAN	BANK	03/08/1973	W	F	P	T
050777	400213074551301	400203	745532	EDGEWATER FK TWP	HOLIDAY LAKE	ICE CRM STAND	04/17/1978	W	C	C	T
050778	400233074491301	400233	744913	BURLINGTON TWP	TOMLINSON, EDGAR	MOTEL 2	10/01/1978	W	C	C	T

e&f - match production wells in Ref. 11, page 39
g - matches well 5-767 in Ref. 2, pages 11, 13, 15, & 16

Page 11

[redacted]

050735	50.00	M	5.00	61.00	05/29/1962	101.00	450.00	329.00	354.00	8.0	25.0	L	R	0.00		0.00

SELECTED INFORMATION OF WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

	USGS UNIQUE ID	ALTITUD	METH ALT MEAS	ALTI-TUDE ACC	WATER LEVEL	DATE LEVEL MEASURED	PRODU-TION LEVEL	DISCHARG	DEPTH FIRST OPENING	BOTTOM LAST OPENING	MIN OPEN DIA	OPEN-ING LENGT	TYPE OPEN-ING	TYPE OPEN MAT	BEDROCK DEPTH	BEDROCK MATERIAL	DEPTH DRILLER LOG
	050736	120.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050737	70.00	M	5.00	23.00	04/28/1961	0.00	50.00	272.00	283.00	4.0	11.0	S		0.00		283.00
	050738	80.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050739	80.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050740	110.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050741	40.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050742	40.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050743	10.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050744	100.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050745	102.00	M	5.00	121.50	12/01/1974	132.83	201.00	260.00	290.00	8.0	30.0	W		0.00		350.00
	050746	20.00	M	5.00	0.00	/ /	0.00	0.00	389.00	450.00	12.0	61.0	S		0.00		0.00
	050747	80.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050748	80.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050749	75.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050750	30.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050751	20.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050752	45.00	M	5.00	101.75	10/12/1973	192.25	151.00	473.33	513.67	6.0	40.3	S		0.00		423.00
	050753	95.00	M	5.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050754	100.00	M	5.00	46.17	01/28/1975	162.00	128.00	418.50	447.00	8.0	28.5	P		0.00		545.00
	050755	90.00	M	5.00	146.25	02/01/1973	178.91	560.00	546.50	593.00	8.0	46.5	R	R	0.00		631.00
	050756	0.00		0.00	0.00	/ /	0.00	200.00	64.00	78.00	5.6	14.0	S	R	0.00		0.00
	050757	50.00	M	5.00	0.00	/ /	0.00	0.00	458.00	550.00	12.0	92.0	S		0.00		572.00
	050758	10.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050759	125.00	M	5.00	163.00	08/14/1980	220.92	1001.00	593.00	672.00	12.0	79.0	S	S	0.00		801.00
e	050760	18.00	M	10.00	0.00	/ /	0.00	0.00	50.00	90.00	12.0	40.0	R	R	0.00		105.00
f	050761	18.00	M	10.00	18.00	/ /	61.53	627.00	70.00	105.00	18.0	35.0	R	R	0.00		107.00
	050762	10.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050763	10.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050764	10.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050765	0.00		0.00	6.28	08/01/1957	0.00	14.00	0.00	0.00	0.0	0.0			0.00		0.00
	050766	110.00	M	5.00	209.00	02/01/1980	220.00	120.00	492.00	512.00	8.0	20.0	S	S	0.00		512.00
g	050767	10.00	M	10.00	0.00	/ /	0.00	0.00	0.00	0.00	0.0	0.0			0.00		0.00
	050768	100.00	M	0.00	0.00	/ /	0.00	0.00	182.00	194.00	6.0	12.0	S		0.00		0.00
	050769	0.00		0.00	2.08	01/01/1957	0.00	21.00	31.00	34.00	1.0	3.0	S		0.00		0.00
	050770	40.00	M	10.00	33.83	05/03/1978	78.83	435.00	173.00	193.00	0.0	20.0	S	R	0.00		0.00
	050771	25.00	M	10.00	16.00	04/23/1956	36.00	100.00	53.00	63.00	0.0	10.0	P		0.00		0.00
	050772	68.00	M	10.00	55.00	12/11/1954	130.00	40.00	175.00	185.00	0.0	10.0	S		0.00		220.00
	050773	35.00	M	10.00	0.30	/ /	0.00	0.00	40.00	50.00	0.0	10.0	P		0.00		0.00
	050774	25.00	M	10.00	21.00	02/09/1956	25.00	100.00	52.00	64.00	0.0	12.0	P		0.00		0.00
	050775	65.00	M	5.00	55.00	09/20/1955	75.00	80.00	121.00	131.00	0.0	10.0	P		0.00		0.00
	050776	40.00	M	10.00	25.00	03/08/1973	35.00	30.00	53.00	58.00	0.0	5.0	S	P	0.00		0.00
	050777	40.00	M	10.00	13.00	04/17/1978	22.00	15.00	40.00	50.00	4.0	10.0	S	P	0.00		0.00
	050778	75.00	M	10.00	85.00	10/01/1978	95.00	35.00	180.00	195.00	4.0	15.0	S	P	0.00		0.00

Page 12

[redacted] 0[redacted]2 [redacted]6.00 211MRPA U [redacted] 02040201 SCHULTES, AC 12.0 W [redacted] 2706673 [redacted]
050733 205.00 211EGLS C [redacted] 020402 J[redacted]THA [redacted] W [redacted] 0 [redacted] 00 [redacted]

050734	26.00	112PLSC	U	02040202	SCHULTES, AC	4.0	W	3116466	3104238				0.0	0.00	30.00	16
050735	354.00	211MRPA	U	02040202	LAYNE NY CO	12.0	W	3104461		00190		T	8.0	11.25	-11.00	17

SELECTED INFORMATION FROM WELLS IN THE GROUND WATER SITE INVENTORY DATABASE
BURLINGTON COUNTY

USGS UNIQUE ID	WELL DEPTH	AQUIFER CCDE	DATA RELIA-BILITY	HYDRO-LOGIC UNIT	DRILLER	MIN CASING DIA	SITE TYPE	NJDEP PERMIT NUMBER	NJDEP GRID NUMBER	WATER ALLOC NUMBE	STAN INDUS USE	LIFT TYPE	TIME PERIOD PUMPED	SPECIFIC CAPACITY	ALTITUDE WATER LEVEL	MU CI CO
050736	0.00	121CKKD	C	02040301		0.0	W						0.0	0.00	0.00	39
050737	283.00	211MLRW	C	02040202		4.0	W	3200378				A	0.0	0.00	47.00	29
050738	220.00	211MLRW	C	02040202		0.0	W						0.0	0.00	0.00	29
050739	314.00	211MRPA	C	02040202		0.0	W						0.0	0.00	0.00	40
050740	0.00	211EGLS	C	02040201		0.0	W						0.0	0.00	0.00	37
050741	0.00	211MRPA	C	02040201		0.0	W						0.0	0.00	0.00	34
050742	175.00	211MRPA	C	02040201		0.0	W				4941		0.0	0.00	0.00	12
050743	0.00	211MRPA	C	02040201		0.0	W						0.0	0.00	0.00	5
050744	456.00	211MLRW	C	02040202	JENKINS	0.0	W						0.0	0.00	0.00	29
050745	290.00	211MRPA	C	02040202	SCHULTES	8.0	W	2705937	2744398			T	8.0	17.74	-19.50	26
050746	450.00	211MRPA	C	02040202	LAYNE N Y	12.0	W	3112925		01760	4941		0.0	0.00	0.00	19
050747	257.00	211MRPA	C	02040202		0.0	W						0.0	0.00	0.00	24
050748	170.00	211MRPA	C	02040202		0.0	W						0.0	0.00	0.00	22
050749	425.00	211MRPA	C	02040202		0.0	W	3107140					0.0	0.00	0.00	24
050750	0.00	211EGLS	C	02040202		0.0	W	3107140	3103919	2108P			0.0	0.00	0.00	24
050751	325.00	211MRPA	C	02040202		0.0	W	3107139	3103919	2108P			0.0	0.00	0.00	24
050752	513.67	211MRPA	U	02040202	HAMMOND	6.0	W			05004			8.0	1.67	-56.75	13
050753	141.00	211EGLS	C	02040201		0.0	W						0.0	0.00	0.00	7
050754	447.00	211EGLS	C	02040202		8.0	W						8.0	1.11	53.83	25
050755	593.00	211MRPA	U	02040202	SCHULTES	8.0	W	3106840	3114449	01590	4941	T	4.0	17.15	-56.25	13
050756	78.00	211RDBK	U	02040201	STAR	6.0	W	2806678	2833742			S	0.0	0.00	0.00	20
050757	550.00		U	02040202	SCHULTES AC	12.0	W	3107453	3114128	05004	4941		0.0	0.00	0.00	13
050758	114.00	211MRPA	C	02040201		0.0	W						0.0	0.00	0.00	6
050759	672.00	211MRPA	C	02040202	SCHULTES, AC	12.0	W	3116976	3114643	05039	4941	T	22.0	17.28	-38.00	20
e 050760	90.00	211MRPA	C	02040201	LAYNE NY CO	12.0	W				4941		0.0	0.00	0.00	6
f 050761	105.00	211MRPA	C	02040201	LAYNE NY CO	18.0	W				4941		20.0	14.40	0.00	6
050762	225.00	211MRPA	C	02040201		0.0	W						0.0	0.00	0.00	6
050763	0.00	211MRPA	C	02040201		0.0	W						0.0	0.00	0.00	6
050764	0.00	211MRPA	C	02040201		0.0	W						0.0	0.00	0.00	6
050765	23.00	112PLCC	U	02040202		1.0	W						0.0	0.00	-6.28	39
050766	512.00	211MRPA	U	02040202	MURTHA, JOHN	8.0	W	3115451	3113300			S	8.0	10.91	-99.00	13
g 050767	0.00	211MRPA	U	02040201		0.0	W						0.0	0.00	0.00	6
050768	194.00	211MRPA	C	02040201		6.0	W						0.0	0.00	0.00	18
050769	34.00	112PLCC	U	02040202		1.0	W						0.0	0.00	-2.08	39
050770	193.00	211MRPA	U	02040201	A.C. SCHULTES	6.0	W	2706401	2734925				24.0	9.67	6.17	6
050771	63.00	211MRPA	U	02040202	CHAS MOLLITO	6.0	W	2701977	2743279			A	5.0	5.00	9.00	30
050772	185.00	211MRPA	C	02040201	WM. STOTHOFF	6.0	W	2701453	2744624		4941		8.0	0.53	13.00	6
050773	50.00	211MRPA	U	02040202	RAYMOND INTE	4.0	W	2705833	2743451	00011			0.0	0.00	0.00	8
050774	64.00	211MRPA	U	02040202	CHAS MOLLITO	6.0	W		2743288		4941		2.0	25.00	4.00	30
050775	131.00	211MRPA	U	02040201	CHAS MOLLITO	6.0	W	2801828	2831295				5.0	4.00	10.00	4
050776	58.00	211MRPA	U	02040201	WATER WELLS	4.0	W				4941	S	4.0	3.00	15.00	38
050777	50.00	211MRPA	C	02040202	ECONO-WELLS	4.0	W					S	6.0	1.67	27.00	12
050778	195.00	211MRPA	U	02040201	WATER-WELLS	4.0	W	2706545	2744381			S	4.0	3.50	-10.00	6

Page 13

United States Department of the Interior

GEOLOGICAL SURVEY

Water Resources Division
Mountain View Office Park
810 Bear Tavern Rd., Suite 206
W. Trenton, NJ 08628

February 21, 1986

Ms. Diane Trube
NUS Corporation
Raritan Plaza II
Fieldcrest Avenue
Edison, NJ 08837

Dear Ms. Trube:

Enclosed are retrievals from our Ground Water Site Inventory Data Base for 14 New Jersey counties as you requested. Together with the retrievals for seven (7) counties previously sent on January 14, 1986, this provides you with a complete copy of the data base for New Jersey with approximately 7,000 entries.

I trust that this information will be useful.

Sincerely,

F. L. Schaefer

F. L. Schaefer
Information Requests Specialist

Encl.

cc: T. V. Fusillo

FLS:nm

STORED COMPONENTS

Each of the components stored in the District File is described in this section. Most of the definitions are derived from Volume II of the WATSTORE User's Guide.

1. Unique Well Number - A six digit number of which the first two digits represent the county code and the last four digits are a consecutive number assigned to the well when the well is scheduled. The county codes and the counties they represent are:

COUNTY CODES

01 - ATLANTIC
03 - BERGEN
05 - BURLINGTON
07 - CAMDEN
09 - CAPE MAY
11 - CUMBERLAND
13 - ESSEX
15 - GLOUCESTER
17 - HUDSON
19 - HUNTERDON
21 - MERCER
23 - MIDDLESEX
25 - MONMOUTH
27 - MORRIS
29 - OCEAN
31 - PASSAIC
33 - SALEM
35 - SOMERSET
37 - SUSSEX
39 - UNION
41 - WARREN

2. Site - ID - A 15-digit identification number assigned to the site used primarily as an internal control number within the WATSTORE computer file. Although the Site - ID is formed initially from the latitude and longitude of the site, the number is an identifier and not a locator.

3. Latitude - The best available value for the latitude of the site in degrees, minutes, and seconds.

4. Longitude - The best available value for the longitude of the site in degrees, minutes, and seconds.

5. Municipality - The name of the township in which the well is located.

6. Owner - The most current known owner of the well.

7. Local identifier - A name given to the well by the owner or U.S. Geological Survey to help distinguish between multiple wells of the same owner.

8. Date completed - The date the well was completed by the driller.

9. Use of site - A code indicating the principal use of the site. The codes and their meanings are:

A - anode
C - standby emergency supply
D - drain
E - geothermal
G - seismic
H - heat reservoir
M - mine
O - observation
P - oil or gas well
R - recharge
S - repressurize
T - test
U - unused
W - withdrawal of water
X - waste disposal
Z - destroyed

Use of water - A code indicating the principal use of water from the site. The codes and their meanings are:

A - air conditioning	I - irrigation	R - recreation
B - bottling	J - industrial (cooling)	S - stock
C - commercial	K - mining	T - institution
D - dewater	M - medicinal	U - unused
E - power	N - industrial	Y - desalination
F - fire	P - public supply	Z - other (explain in remarks)
H - domestic	Q - aquaculture	

11. Altitude of land surface (feet) - The altitudes of the land surface at the site, in feet above land surface datum (NVGD of 1929).

12. Water level (feet) - The depth of the water in the well from the land surface at the time the well was constructed.

13. Date water level measured - The date on which the given water level was measured which is usually at the time the well was constructed.

14. Depth of well (feet) - The depth of the finished well in feet below land surface datum. This is not always equal to the bottom of the last opening because the well may have a plug at the bottom.

15. Production level (feet) - The water level in feet below land surface while the well was discharging usually taken during the initial pump test.

6. Discharge - The discharge from the site in gallons per minute at the time of the original pump test. Page 18

7. Principal aquifer - A code representing the principal source of water in the well. The codes and their meanings are found in Appendix A.

18. Data reliability - Primarily indicates if the well has been field checked by the New Jersey District of the U.S. Geological Survey. The codes and their meanings are:

C - the data have been field checked by the reporting agency.

U - the data have not been field checked by the reporting agency, but the reporting agency considers the data reliable.

19. Altitude measurement method - A code indicating the method used to determine the altitude of the site. The codes and their meanings are:

A - altimeter

L - level or other surveying method

M - interpolated from topographic map

Failure to select one of these values implies that the method is unknown.

20. Length of screen (feet) - The calculated difference between the bottom and top of the open section.

21. Multiple opening flag - In the instances where there are multiple screens or blanks within the screened interval the value calculated is flagged by a *. Thus, the length of screen can be greater than the top to bottom if the screens are telescoped or less if there are blanks.

22. Depth to first opening (feet) - The depth to the top of the first open section of the screen or open hole in feet below land surface.

23. Bottom last opening (feet) - The depth to the bottom of the last open section of the screen or open hole in feet below land surface.

24. Minimum screen diameter (inches) - The smallest diameter of the open section that can be filled with water.

25. End depth drillers log (feet) - The deepest point below land surface that accompanies the drillers lithologic log of the well.

26. Hydrologic unit - A cataloging unit representing the hydrologic unit in which the site is located. The hydrologic units and their boundaries are given in the map provided.

Driller - The name of the company or individual that drilled and finished the well. Page 20

Minimum casing diameter (inches) - The diameter of the narrowest casing segment of the well.

Owner date - The most current date of ownership associated with the well.

Site type - A code representing the type of well. The codes and their meanings are:

C - collector or Ranney type well.

D - drain dug to intercept the water table or potentiometric surface to either lower the ground-water level or serve as a water supply.

E - excavation.

H - sinkhole.

I - interconnected wells, also called connector or drainage wells; that is, a well interconnected via an underground lateral.

M - multiple wells. Use only for well field consisting of a group of wells that are pumped through a single header and for which little or no data about the individual wells are available.

O - outcrop.

P - pond dug to intercept the water table or potentiometric surface and serve as a water supply.

S - spring (used only on spring schedule.

T - tunnel, shaft, or mine from which ground water is obtained.

W - well, for single wells other than wells of the collector or Ranney.

X - test hole, not completed as a well.

31. Latitude - longitude accuracy - Indicates the accuracy to which the lat-long is measured. When it is measured from a U.S. Geological Survey topographic map the code T for ± 10 seconds is generally used. When field checked the code used is F ± 5 seconds. The codes and meanings are:

S - the measurement is accurate to ± 1 second

F - the measurement is accurate to ± 5 seconds

T - the measurement is accurate to ± 10 seconds

M - the measurement is accurate to ± 1 minute

No value indicates that the accuracy is unknown and is, therefore, assumed to be beyond one minute.

32. Accuracy of altitude - The accuracy of altitudes interpolated from the contours on topographic maps is ± one-half the contour interval.

33. Current use of water - The codes from use of water are used, however, this code represents the current status of the well. The primary use may have changed or the well may have been destroyed.

34. Measuring point - point above land surface from which water level measurement is taken.

35. Permit number - The State Department of Environmental Protection, Division of Water Resources (NJDEP/DWR) assigns a 6-7 digit code with the first 2 digits representing the State Atlas Map on which the well is located and the remaining 4-5 digits are assigned consecutively.

36. Grid number - The 7 digit code assigned by the NJDEP/DWR representing the well location on the State Atlas Maps.

37. Water Supply number - Number assigned by the NJDEP/DWR Water Policy and Supply Council, to the diversion rights of a well.

38. Depth to bedrock - Depth in feet below land surface datum where a rock formation is first encountered.

39. Bedrock material (lithology) - The description and classification of bedrock. The codes and their meanings are given in Appendix C.

40. Standard industrial use code - A standard four-digit code representing the use of the water. The codes and their meanings are given in Appendix B.

41. Type of opening - The code indicating type of open section. Page 23

The codes and their meanings are:

F - fractured rock

L - louvered or shutter-type

M - mesh screen

P - perforated, porous, or slotted casing

R - wire-wound screen

S - screen, type not known

T - sand point

W - walled or shored

X - open hole

Z - other (explain in remarks)

This field is mandatory. Information about the openings will not be stored if this field is blank.

42. Type of opening material (C86/Screen-Material) - The code indicating the type of material from which the screen or other open section is made. The codes and their meanings are:

B - brass or bronze

C - concrete

G - galvanized iron

I - wrought iron

M - other metal

P - PVC, fiberglass, or other plastic

R - stainless steel

S - steel

T - tile

Z - other (explain in remarks)

43. Type of lift - The type of lift or pump used to bring water to the surface. The codes and meanings are:

A - air list

B - bucket

C - centrifugal pump

J - jet pump

P - piston pump

R - rotary pump

S - submergible pump

T - turbine pump

U - unknown

Z - other (explain in remarks)

24. <u>Municipolity code</u> - A list of municipalities and codes published by the New Jersey Department of Transportation. The code are assigned 2-digit numbers to the alphabetical listing of municipolities within each county. (Appendix D.)

COMPUTED VALUES

Values stored in the GWSIDB.DAT file can be used to compute other components using DATATRIEVE. These components do not occupy space in the GWSIDB.DAT file and are derived only when you use them in a DATATRIEVE statement.

1. Altitude of water level (feet) - A value calculated by the computer by subtracting the water level from the altitude of the land surface.

2. Drawdown (feet) - The difference between the production level and the water level.

3. Specific capacity - The discharge expressed as a rate of yield per unit drawdown reported in units of gallons per minute per feet. If the value is followed by a μ, the date of the water level measurement is different than the date of construction by two years or greater or one of the dates is blank. This gives an indication of the reliability of the specific capacity measurement to the initial conditions at the time the well was drilled.

REFERENCE #6

JANUARY 1982

Page 1

BUCKS COUNTY
WATER SUPPLY UPDATE
1981

BUCKS COUNTY BOARD OF COMMISSIONERS

Andrew L. Warren, Chairman
Elaine P. Zettick
Carl F. Fonash

Prepared By
Bucks County Planning Commission
22-28 South Main Street
Doylestown, Pa. 18901

January, 1982

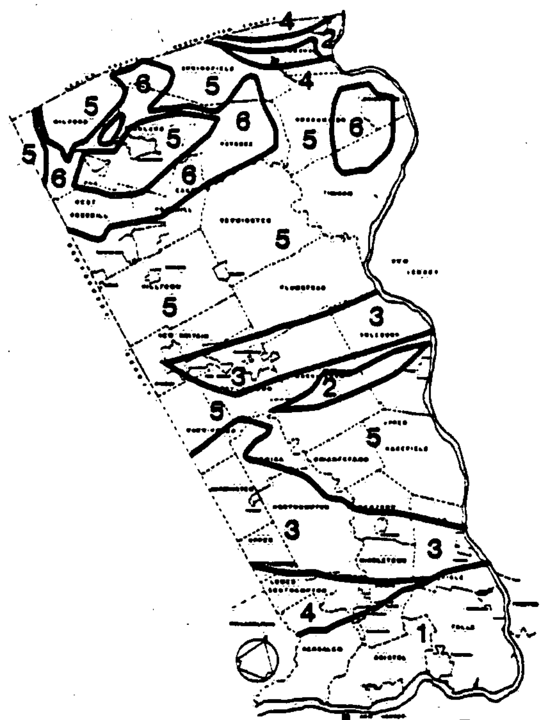
Page 2

TABLE 2

Base Flow Yield By Geologic Formation

Geologic Formation	Base Flow Yield (Normal Year) GPD/sq. mi.
1. Coastal Plain	700,000
2. Carbonates	700,000
3. Stockton	500,000 - 600,000
4. Quartz Conglomerate	500,000 - 600,000
5. Lockatong/Brunswick	300,000 - 400,000
6. Diabase	200,000 - 300,000

FIGURE - 1



Water pumped from wells is water that would have eventually discharged to nearby streams as base flow; therefore, any groundwater pumped out of a given area will result in an equivalent decrease in the base flow of the streams passing through the area. If the groundwater systems are pumped to such an extent that the water tables are drawn down below the levels of streams in the region, induced infiltration of streamflows into the underlying groundwater will occur. If continued overpumping during drought conditions extends over a large enough reach of the stream channel, a complete dewatering of the stream may occur. Induced stream recharge, especially in times of low flow, often results in groundwater quality degradation. This occurs because the surface water quality in these overpumped areas, which are frequently urbanized, is seldom as good as natural groundwater recharge through the soil system, particularly when the streamflows are sustained largely or wholly by sewage treatment plant discharges. Therefore, it is necessary that allowable pumping withdrawals be limited so that adequate stream base flow is maintained. Other reports have attributed fifty percent of the average annual recharge to pumping. The remaining fifty percent is allocated to the maintenance of natural stream flow. In addition, it should be noted that the maximum well yield obtained during the pump test will generally decrease with use. For purposes of developing Table 3, this reduction in well productivity has been assumed to be 40 percent.

Surface Water Supplies

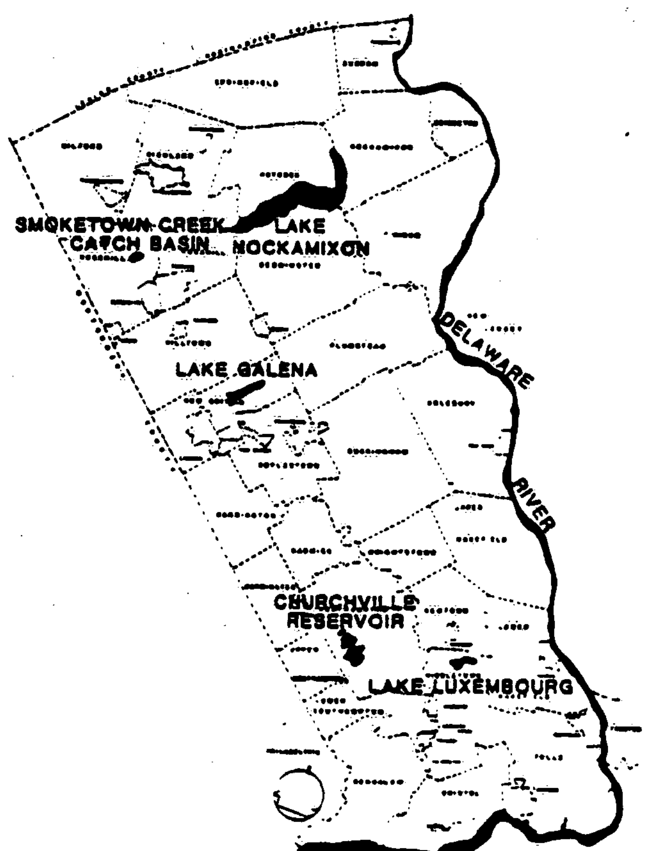
Currently, surface water in Bucks County is drawn almost entirely from the Delaware River. The water suppliers in Bucks County who draw water from the Delaware River and the municipalities they serve are listed in Table 4.

TABLE 4 - Water Suppliers Using Surface Water Sources

NAME OF WATER SUPPLIER	MUNICIPALITIES SERVED
Bristol Borough Water & Sewer Authority	Bristol Borough Bristol Township (part)
Keystone Water Co.	Yardley Borough Lower Makefield Twp. (part)
Lower Bucks Joint Municipal Authority	Tullytown Borough Bristol Township (part) Falls Township (part) Middletown Township (part)
Morrisville Borough Authority	Morrisville Borough Falls Township (part) Lower Makefield Twp. (part)

Other sources of surface water in the County (see Figure 2) include Churchville Reservoir on Ironworks Creek and the Smoketown Creek catch basin. The Churchville Reservoir in Northampton Township releases up to 12 million gallons of water per day into Mill Creek which then flows into the Neshaminy Creek. Approximately 2.5 miles downstream, the Philadelphia Suburban Water Company withdraws the water from the Creek. After treatment, the water is piped to Philadelphia Suburban Water Company's distribution system which lies outside of Bucks County. The Smoketown Creek catch basin in West Rockhill Township is part of the Sellersville Municipal Water Works and has a total capacity of 18 million gallons. After treatment, the water flows into the Sellersville water supply system.

FIGURE - 2



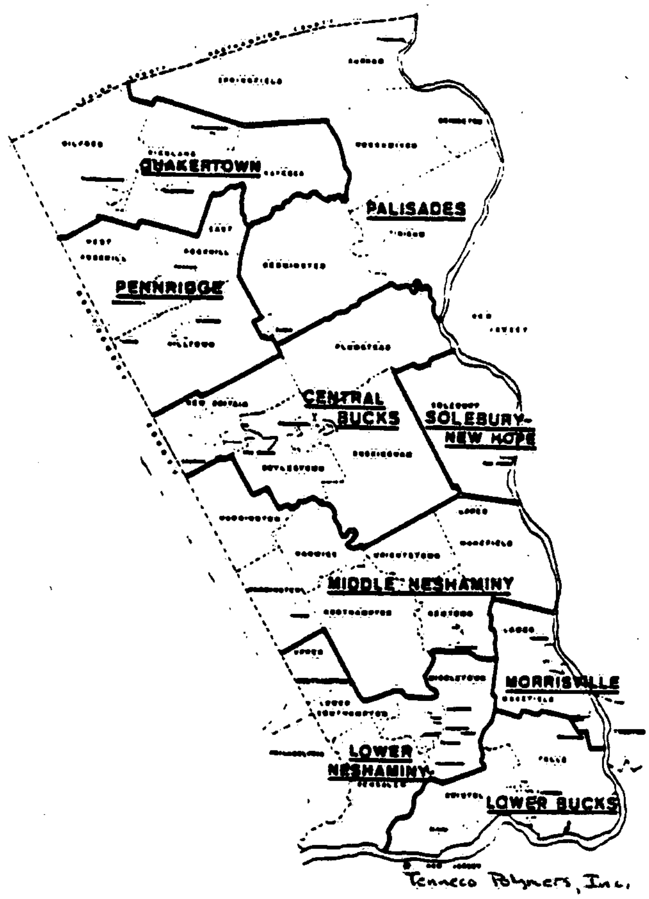
BUCKS COUNTY SURFACE WATER SOURCES

Tenneco Polymers, Inc.

Page 4

REGIONAL WATER SUPPLY SUMMARIES

FIGURE - 3



WATER SUPPLY REGIONS

Figure 3 shows the current water supply regions in Bucks County as delineated by the Bucks County Planning Commission. These regions are different from those in the 1970 Master Plan for Water Supply in that they follow municipal boundaries. The regions in the 1970 Plan were based upon topography, estimated population cores, and their relative future expansion. However, in actual practice, most planning is done with regard to governmental borders.

The regional summaries which follow are meant to bring the reader up to date concerning changes in water supply since 1975. The "Existing Water Supply Service Area Map" referenced throughout this section may be found in the appendix of this report.

Quakertown Region

The Quakertown Region includes the Boroughs of Quakertown, Trumbauersville, and Richlandtown and the Townships of Haycock, Milford, and Richland. The population of the Region in 1980 was 24,917, with the largest concentration centered in and around Quakertown Borough. The largest projected increase in population by the year 2000 will be in Richland Township.

The Region spans the Unami Creek Watershed and part of the Tohickon Creek watershed. Surface water from these stream networks is not used as a source of water supply. Groundwater is the sole source of water supply in the Region, with the

Page 5

Water is supplied within the Region from both groundwater and surface water sources. Delaware River water, withdrawn and treated in Philadelphia (Torresdale Filtration Plant), is distributed by the Bucks County Water and Sewer Authority to the Warrington, Warminster, and Northampton Authorities. The Philadelphia Suburban Water Company also has a water supply reservoir (Churchville) in the region, although the Company does not supply water to the Region.

All of the water suppliers in the Region, however, depend upon groundwater to varying degrees. The majority of the underlying geologic formations in the region from which groundwater is withdrawn are Triassic Brunswick shale, Lockatong argillite, Stockton sandstone and Diabase. There is a small area in the southern corner of Northampton that is underlain by Precambrian gneiss. Groundwater yields vary from poor to good, reflecting the overall characteristics of these formations.

This Region may in the future be supplied with water from the Neshaminy Water Supply Project. (Refer to OVERVIEW.)

Lower Neshaminy Region

The Lower Neshaminy Region includes the boroughs of Langhorne, Langhorne Manor, Penndel, and Hulmeville and the townships of Upper Southampton, Lower Southampton, Middletown and Bensalem. The 1980 population of the Region was 127,273. Bensalem Township is the second largest township in Bucks County, and is projected to increase between 15,000 and 20,000 people by the year 2000.

The Region is supplied with water from both surface water and groundwater sources. Portions of the Neshaminy Creek Watershed, the Pennypack Creek Watershed, the Poquessing Creek Watershed, and the Delaware River lie within the Region's boundaries. The Middletown Township Municipal Authority uses water from Chubb Run, a tributary of the Neshaminy Creek, as part of its water supply. Middletown, along with Upper Southampton Township Municipal Authority and the Bensalem Township Municipal Authority, provides customers with water purchased from the Bucks County Water and Sewer Authority (BCWSA) which also has a service area in the Region (the BCWSA receives water from the City of Philadelphia's Torresdale

Treatment Plant). The Lower Bucks County Joint Municipal Authority withdraws water from the Delaware River for use in its service area. Refer to the "Existing Water Supply Service Area Map" for the location of water supplies in the Lower Neshaminy Region. These water suppliers, except for the Bucks County Water and Sewer Authority, also use groundwater as part of their water supply. The underlying geologic formations of the Region consist of Triassic Stockton sandstone, Precambrian gneiss, Precambrian schist, and unconsolidated sands and gravels. Groundwater yields may vary from fair to good, reflecting the overall water bearing characteristics of these formations.

Morrisville Region

The Morrisville Region includes the Boroughs of Yardley and Morrisville and Lower Makefield Township. The population of the Region in 1980 was 29,729 and is projected to increase by approximately 10,000 by the year 2000.

The Keystone Water Company and the Morrisville Borough Municipal Water Works supply water for areas in the Region. Both of these water suppliers withdraw water from the Delaware River. In addition, Keystone Water Company also uses wells. Refer to the Existing Water Supply Facilities Map for the location of the two water suppliers in the Morrisville Region.

The principal aquifers in the Region are Triassic Stockton sandstone with generally good yields, Triassic Lockatong argillite with poor yield, and Precambrian gneiss with generally fair yields. The State Water Plan recommends increased allocations from the Delaware River as a possible solution to public water supply needs, though additional well development is a viable alternative.

Lower Bucks Region

The Lower Bucks Region includes Bristol Borough, Tullytown Borough, Bristol Township and Falls Township. The 1980 population was 107,960 and is projected to increase by approximately 20,000 by the year 2000. A large percentage of this increase is projected to occur in Falls Township.

The Region spans portions of the Neshaminy Creek, Mill Creek and unnamed tributary watersheds of the Delaware River. The Keystone Water Company, the Bristol Borough Water and Sewer Authority, and the Lower Bucks County Joint Municipal Authority service the Region with water from both groundwater and water that is withdrawn from the Delaware River. The Falls Township Authority also serves the Region, but with water purchased from the Lower Bucks County Joint Municipal Authority. Fair to good well yields are provided by the unconsolidated sand, gravel, and clay formations in the Region. (Refer to Existing Water Supply Service Area Map for the location of water suppliers in the Region.)

Bristol Borough Water Department

The Bristol Borough Water Department (BBWD) supplies water to customers in Bristol Borough and Bristol Township. The present number of connections served include:

	Domestic	Commercial	Industrial
Bristol Borough	2817	529	40
Bristol Township	5434	248	57
Total	8251	777	97

The average daily water use for the BBWD was 5.07 MGD, with a peak daily use of 6.671 MGD during 1980. Both surface water from the Delaware River and groundwater from six wells are sources of public water for this agency.

Bucks County Water and Sewer Authority

The Bucks County Water and Sewer Authority (BCWSA) purchases all of its required water supply from the City of Philadelphia. The Authority does have one well; however, the yield is low compared to the volume of purchased water. The BCWSA currently has a contract with the City of Philadelphia which enables them to purchase up to an average daily flow of 20 million gallons and a maximum flow of 25 million gallons during hourly periods, until 1990. At that time the flows will increase to 25 MGD and 35 MGD during hourly periods.

The BCWSA provides bulk sales of water to the following municipal purveyors':

Bensalem Township Authority
Middletown Township Authority
Philadelphia Suburban Water Company
Upper Southampton Municipal Authority, and
Northampton Township Municipal Authority

In Lower Southampton Township the BCWSA provides water for 2,524 domestic, 294 commercial, and 42 industrial connections. The combined water use for these connections is 1.204 MGD.

Keystone Water Company

The Keystone Water Company (KWC) is a private water company serving Yardley Borough and parts of Lower Makefield and Falls Townships. Water supplies were obtained from the Delaware River and eight wells. The average daily withdrawal from the Delaware during 1980 was 1.666 MGD, while the wells supplied an additional .552 MGD. The KWC supplied 5,386 domestic, 133 commercial, and 5 industrial customers an average daily water supply of 1.248 MGD, .220 MGD, and .006 MGD, respectively. The total average daily water use for 1980 was 2.230 MGD, with a peak daily use of 3.768 MGD.

The KWC has a two million gallon raw water storage reservoir and 2.5 million gallons of treated water storage in four standpipes and a clearwater basin.

Anticipated improvements to the system include new river intake facilities, expansion of the existing treatment plant, and a 0.75 million gallon treated water storage tank.

Lower Bucks County Joint Municipal Authority

The Lower Bucks County Joint Municipal Authority (LBCJMA) provides water to customers in Tullytown Borough and parts of Falls, Middletown, and Bristol Townships. The Authority supplied an annual average of 5.0 MGD to 20,119 domestic connections, 1.0 MGD to 882 commercial connections, and 1.5 MGD to 40 industrial customers. In addition, 1.24 MGD was supplied to the neighboring Falls Authority. The total average daily water requirement for the LBCJMA during 1979 was 7.5 MGD, with a maximum daily demand of 10.1 million gallons.

Water supply sources for the Authority include the Delaware River and seven wells. The water treatment plant has a 16.0 MGD capacity. The wells are only used in emergency situations. Five storage tanks provide a finished water capacity of 4.73 million gallons.

INVENTORY OF EXISTING WATER SUPPLY FACILITIES 1980

Name of Agency	Municipalities Served	Public or Private Control	Effective Storage Finished Water (MG)	Sources of Supply
1. Bensalem Township Municipal Authority	Bensalem Township	Public	.593	Bucks County Water and Sewer Authority
2. Bristol Borough Water and Sewer Authority	Bristol Borough Bristol Township	Public	8.5	Delaware River 6 Wells
3. Bucks County Water and Sewer Authority (B.C.W.S.A.)	Bensalem Township Lower Southampton Twp. Middletown Township Upper Southampton Twp. Northampton Township Phila. Suburban Water Co.	Public	8.0	City of Philadelphia 1 Well
4. Chalfont Borough Water Department	Chalfont Borough New Britain Borough New Britain Township	Public	1.5	5 Wells
5. Colonial Greene Water Co., Inc.	Doylestown Township	Private	.3	2 Wells
6. Doylestown Borough Municipal Water Works	Doylestown Borough	Public	1.4	5 Wells
7. Falls Township Authority	Falls Township Bristol Township	Public	1.75	Lower Bucks Joint Municipal Authority
8. Keystone Water Company	Yardley Borough Lower Makefield Twp. Falls Township	Private	4.5	Delaware River 8 Wells
9. Lower Bucks County Joint Municipal Authority	Tullytown Borough Falls Township Middletown Township Bristol Township	Public	4.73	Delaware River 7 Wells- Emergency Use Only
10. Middletown Township Municipal Authority	Langhorne Borough Langhorne Manor Borough Hulmeville Borough Middletown Township	Public	2.45	11 Wells Chubb Run B.C.W.S.A.

N/A — Information Not Available

Page 11

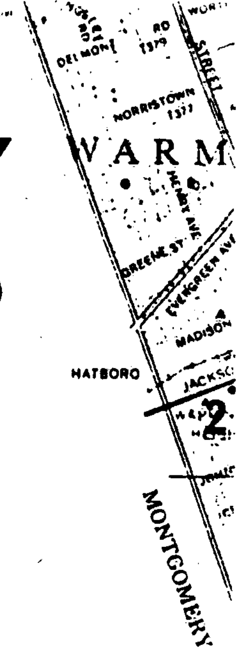
INVENTORY OF EXISTING WATER SUPPLY FACILITIES 1980 (contd.)

Estimated Dependable Safe Yield of Supply System (MGD)	Emergency Interconnections	Present Average Demand (MGD) (a) Domestic (b) Commercial (c) Industrial	Number of Connections (a) Domestic (b) Commercial (c) Industrial	Estimated Population Served •	Approximate GPCD*
6.0	None	(a) 5.295 (b) .098 (c) .071	(a) 10,330 (b) 190 (c) 140	33,056	160
3.0 1.2	None	(a) 2.64 (b) N/A (c) N/A	(a) 8,251 (b) 777 (c) 97	26,403	100
50.0 .01	City of Philadelphia 1.5 MGD	(a) .793 (b) .352 (c) .059	(a) 2,524 (b) 294 (c) 42	8,076	98
1.45	None	(a) .293 (b) .032 (c) .025	(a) 1,194 (b) 76 (c) 5	3,820	77
.324	None	(a) .045 (b) None (c) None	(a) 247 (b) None (c) None	790	57
1.7	None	(a) N/A (b) .221 (c) .123	(a) 2,771 (b) 331 (c) 26	8,867	70
3.0	None	(a) 1.14 (b) .064 (c) .080	(a) 5,683 (b) 165 (c) 48	18,185	62
.788 1.3	Morrisville Boro 1.0 MGD	(a) 1.248 (b) .220 (c) .006	(a) 5,386 (b) 133 (c) 5	17,235	72
16.0 4.0	None	(a) 5.0 (b) 1.0 (c) 1.5	(a) 19,990 (b) 882 (c) 40	63,968	78
1.0 .225 5.0	B.C.W.S.A.	(a) 1.078 (b) .130 (c) .243	(a) 3,118 (b) 197 (c) 40	9,977	108

• Domestic Connections x 3.2
* Indicates Domestic Use Only

Page 12

EXISTING WATER SUPPLY SERVICE AREAS (JANUARY 1980)



1 MUNICIPAL AND PRIVATE WATER SERVICE AREAS

■1 MOBILE HOME PARKS (SELF-SUPPLIED)

●1 INSTITUTIONAL (SELF-SUPPLIED)
(INCLUDING APARTMENT COMPLEXES)

ROADS

95 INTERSTATE 1 U.S. 152 STATE

LIMITED/CONTROLLED ACCESS HIGHWAY

DIVIDED HIGHWAY

MULTI-LANE HIGHWAY

PRINCIPAL THROUGH ROUTE

MINOR STATE ROUTE

TOWNSHIP ROAD, LOCAL STREET

COUNTY BRIDGE

PUBLIC FACILITIES

COUNTY FACILITY

JUDICIAL DISTRICT OFFICE

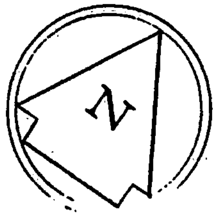
MUNICIPAL BUILDING

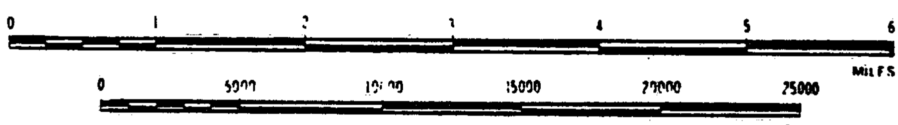
ELEMENTARY SCHOOL

SECONDARY SCHOOL

TECHNICAL SCHOOL

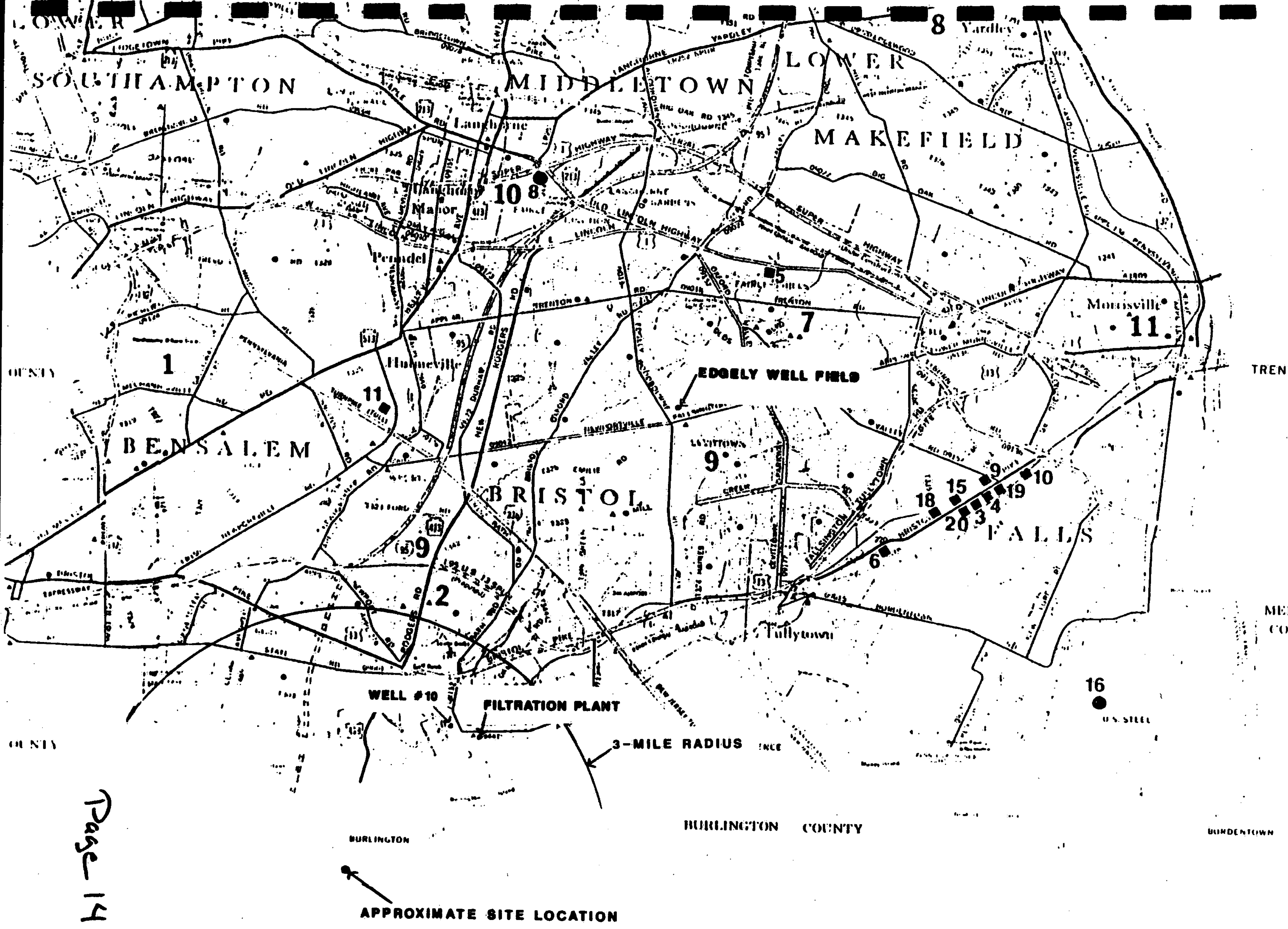
FIREHOUSE





PREPARED BY THE BUCKS COUNTY PLANNING COMMISSION

Page 13


LOWER SOUTHAMPTON
MIDDLETOWN
LOWER MAKEFIELD
BENSALEM
BRISTOL
FALLS
Langhorne
Langhorne Manor
Penndel
Hulmeville
Yardley
Morrisville
Levittown
Tullytown
EDGELY WELL FIELD
WELL #10
FILTRATION PLANT
3-MILE RADIUS
U.S. STEEL
BURLINGTON
BURLINGTON COUNTY
BORDENTOWN
APPROXIMATE SITE LOCATION

Page 14

REFERENCE #7

Bristol

Page 1

Commonwealth of Pennsylvania
Department of Environmental Resources
Bureau of Community Environmental Control

SANITARY SURVEY FORMS

FOR

EVALUATING PUBLIC WATER SUPPLIES

BCEC-78:9-82

Page 2

9-82

PUBLIC WATER SUPPLY EVALUATION
PERSONNEL DATA

Establishment: Bristol Water Dept.

This Report Is To Be Placed In The File For:

Municipality - Bristol Boro. County - Bucks

Owner (s) Bristol Boro.

Official Body in Charge Bristol Boro.

CORRESPONDENCE TO:

Name Fidel Esposito Title Boro. Mgr.

Address Pond & Mulberry Sts., Bristol, Pa. 19007 Telephone No. 788-3828

Name Title

Address Telephone No.

PLANT PERSONNEL

Name Anthony Esposito Certification No.,Type, Class W-3415, 1 A

Address Pond & Mulberry Sts., Bristol Title Supt.

Name Henry Liberatore Certification No.,Type, Class W-0152, 1A Special

Address " " " " Title

Name Certification No.,Type, Class

Address Title

RESPONSIBLE OFFICIALS

Name Fidel Esposito Title Boro. Mgr.

Address Pond & Mulberry Sts., Bristol

Name Title

Address

Name Title

Address

NOTE KEY OFFICIAL AND CONSULTANT TO SEE REGARDING CHANGES, IMPROVEMENTS, ETC.

Name S. J. Campbell Title Boro.

Address Suite #2, 654 N. Woodbourne Rd. Langhorne, Pa. 19047 Middle Atlantic States, Eng'g, Inc.

Name Title

Address

Person Interviewed A. Esposito

Title Supt.

Investigator (signature) [signature]

Title and Date Supvr. 5/16/84

Revision Date

Sheets in Survey: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Sheet 1

(Additional Space on Reverse Side)

Page 3

PUBLIC WATER SUPPLY EVALUATION

GENERAL DESCRIPTION

Establishment: Bristol Water Dept.

Describe briefly but completely the water supply from each separate source to the distribution system, giving for each source the various treatment processes provided in order of occurrence. This description should be complete but simple and clear so as to be understandable by one unfamiliar with the supply. Indicate the availability of emergency power necessary to operate all portions of the supply. (Draw flow diagram on reverse side - show bypass arrangements.) Show the location of all sources of supply, treatment facilities and outline the area owned by the public water supply on a 7.5 minute, U.S. G.S. Topographic Map. In addition, list all current public water supply permits, including permit number, date issued, short summary of permitted facilities and available plans.

Radcliffe St. Filt. Plant*
- Intake
- L.D. Pumps (3)
- Chem. Feed M.H. ← Ferric Chloride, Lime, Calgon, Pre-chlorination
- ** Rapid Mix Chamber ← Polyelectrolite, lime, Potassium Permanganate, alum
- Flocculation (3) ← Carbon
- Sedimentation (4)
- Filtration (4)
- Clearwell ← Post-Chlorination
- L.D. Pumps (3)
- Storage Tanks (2)
- Booster PS (3)
  - System
  - Croydon Tank & PS (2)

Well 10
- Well water chlorinated and discharged to Filt. Plt. Also can be discharged to [illegible]

Edgely Treatment Plant*
- Wells (6)
- Air Tower
- Rapid Mix (2) ← Chlorine, Lime, Calgon
- Basins (2) ← Air
- L.D. Pumps (2) ← Calgon
- Storage Tank
- H.D. Pumps (2)

** Do not presently add these chemicals - 5/16/84

Permits

682	6/25/10	Original filt. plt.
Numerous permits issued 1912 - 1946		
7386	6/9/50	Filt. Plt. Modifications
8162	6/11/51	" " "
8408W	11/4/54	Basin Wells 1 & 2
8803W	1/6/60	Filt. Plt. Modifications
761W1	2/17/61	" " "
762W4	7/20/62	" " "
766W2	3/10/66	Edgely Well 4
0970503	8/21/70	Filt. Plt. Modifications
0971501	3/9/71	" " "
0974502	12/20/74	Edgely Wells 5-9 w/Tr. Plt.
0978507	2/9/79	Edgely Well 8

Person Interviewed A. Esposito

Title Supt.

Investigator (signature) Everett E. Hogg

Title and Date Supvr. 5/16/84

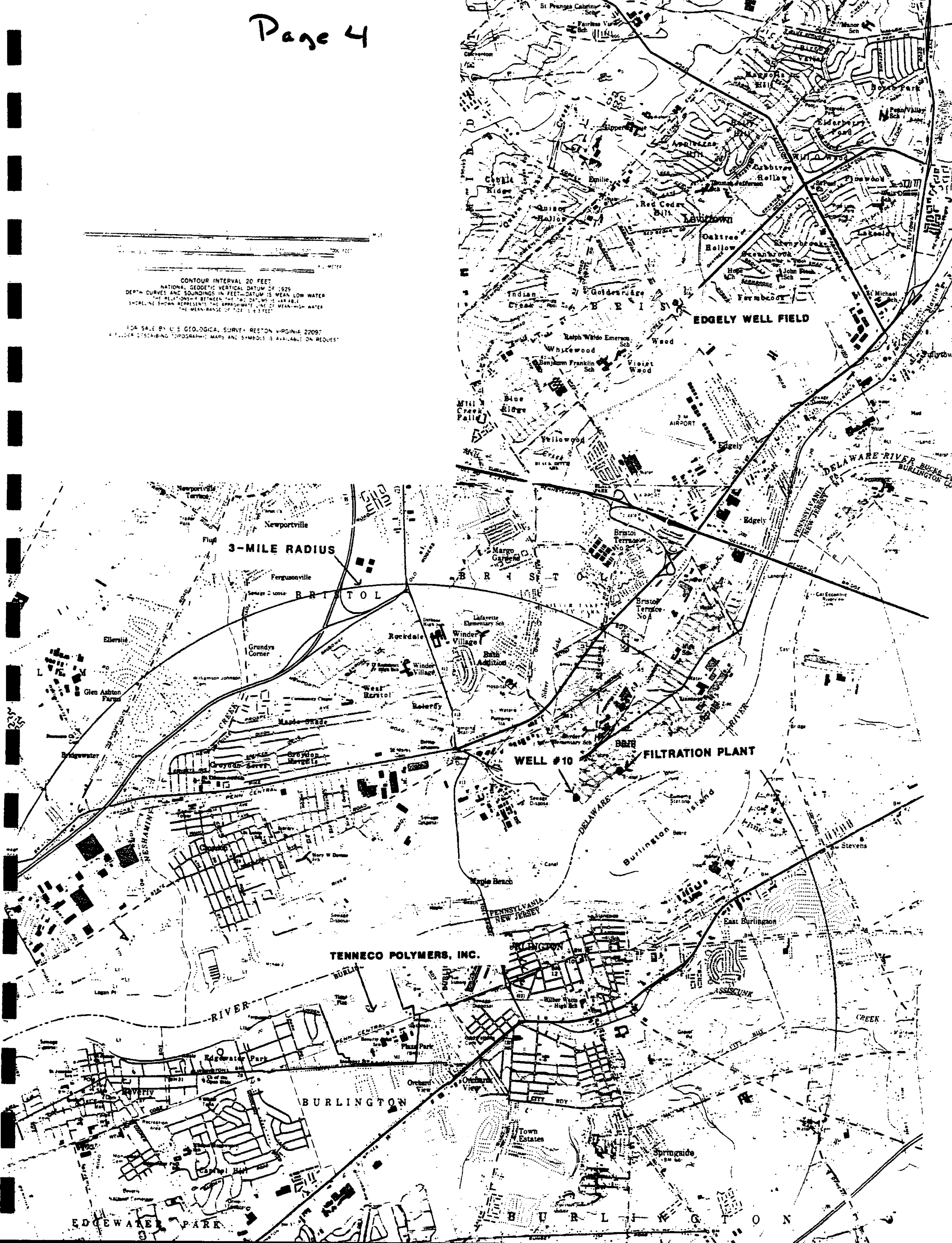
Revision Date

(Additional Space on Reverse Side)

Diesel generators for emergency power source

Sheet 2

Page 4



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
FOR SALE BY U.S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
EDGELY WELL FIELD
3-MILE RADIUS
WELL #10
FILTRATION PLANT
TENNECO POLYMERS, INC.
Levittown
Edgely
Bristol Terrace No 2
Bristol Terrace No 1
Newportville
Fergusonville
Rockdale
Winder Village
West Bristol
Maple Shade
Croydon Acres
Croydon Heights
Glen Ashton Farms
Bridgewater
Maple Beach
Burlington Island
East Burlington
Edgewater Park
Beverly
Orchard View
Town Estates
Springside
DELAWARE RIVER
PENNSYLVANIA
NEW JERSEY
B R I S T O L
B U R L I N G T O N

PUBLIC WATER SUPPLY EVALUATION

GENERAL DATA

Establishment: Bristol Water Dept.

Total number connections 9197 % Metered 100

Consumption (Daily-MGD) Maximum 6.692 Minimum 4.166 Average 5.281

Maximum hourly ____________

MUNICIPALITIES SERVED BY WATER SUPPLY

Municipality	Total Population	Population Served	Av. Consumption (MGD)
Bristol Boro.	10,867		
Bristol Twp.	58,733		

PERMANENT INTERCONNECTIONS WITH OTHER WATER SUPPLIES

Water Supply	Give location and arrangement for use. What is the maximum daily flow in MGD for this interconnection and when was it last used or tested?
Bensalem Twp. Auth.	Pro. Interconnection with BTA via Croydon Storage Tank (State Rd crossing at Neshaminy Creek) - supply water to BTA.

Person Interviewed A. Esposito

Title Supt.

Investigator (signature) E. Everett C. Hogg

Title and Date Supvr 5/16/84

Revision Date ____________

Remarks: ____________

(Additional Space on Reverse Side)

PUBLIC WATER SUPPLY EVALUATION

WELLS OR INFILTRATION GALLERY

Establishment: Bristol Water Dept. Wells ☒ Infiltration Gallery ☐

	IDENTIFYING NAME OR NUMBER OF WELL OR GALLERY	Depth (ft)	YIELD GPM		TYPE PERMIT ISSUED		PERMIT DATE		WATER LEVEL		SUBJECT TO	
			Permitted	Average Current	Regular	Emergency	Issued	Expires	Static	Pumping (Rate Pumped)	Flood	Drought
a)	2 (Edgely)	21		*	✓		12/20	74 —				
b)	3	24		*	✓		12/20	/74 —				
c)	4	54		270	✓		2/9/	79 —		10' (270gpm)		
d)	5	24		300	✓		12/20	/74 —		11.5' (300gpm)		
e)	6	35.3		450	✓		3/10/	66 —		15' (450gpm)		
f)	7	23		*	✓		12/20	/74 —				
g)	10 (Basin)	76.5			✓		11/4/	54 —				
h)												
i)												
j)												

* 5/16/84 - Not currently used, high iron.

	CASING					PUMP			MOTOR		WELL AREA			ADEQUATELY		
	Diameter	Depth	Depth Grouting	Single or Double	Sanitary Well Seal Provided	Type	Number of Stages	Capacity GPM	HP	Type Power-Gasoline, Elec., etc.	Posted	Fenced	Area Owned Sq. Ft. or Acres	Curbed	Ditched	Located
a)	12	15	15*	Double	Yes	Turbine		350	15	Elect.		✓				
b)	12	18	18*	"	"	"		350	15	"		✓				
c)	12	44	44**	"	"	Submersible		400	7.5	"		✓				
d)	12	18	18*	"	"	Turbine		400	20	"		✓				
e)	10	17	17***	"	"	"			10	"		✓				
f)	12	17	17**	"	"	"		400	20	"		✓				
g)	17	60.5	60.5****	"	"	"		500	15	"						
h)																
i)																
j)																

Page 6

Name all water bearing formations and attach well logs for each well.

* Plus 6' screen
** Plus 10' screen
*** Plus 8'-4" screen
**** Plus 16' conc. cellar screen

Person Interviewed: A. Esposito

Title: Supt.

Investigator (signature): Everett C. Hogg

Title and Date: Super 5/16/84

[illegible]ion Date:

PUBLIC WATER SUPPLY EVALUATION
PUMPS & PUMPING STATIONS, DISTRIBUTION SYSTEM

Establishment: Bristol Water Dept.

Pumping Stations:			Regular	Emergency
A	Location	Radcliffe St. Filtration Plant		
	Function	To pump finished water to 2 - 2 MG Stor. Tanks - Maple Beach & Canal's End Rds.	✓	
B	Location	Maple Beach & Canal's End Rds Storage Tanks		
	Function	To pump water to dist. system & 2.5 MG Croydon Stor. Tank	✓	
C	Location	Croydon Storage Tank		
	Function	To pump water to dist. system	✓	
D	Location	Edgely Treatment Plant		
	Function	To pump water to dist. system	✓	

PUMP STATION	PUMP				Suction			Discharge			MOTOR		Control
	Type	Date Installed	Number Stages	Capacity (GPM)	Size (Inches)	Combined or Separate	Head (Feet)	Size (Inches)	Combined or Separate	Head (Feet)	HP	Type Power (Gas, Elec. etc)	Automatic or Manual
A	Turbine			3-3MGD	10	Combined		10	Combined		60	Elect.	Auto.
A	"			1-4MGD	10	"		10	"		200	"	Auxillary
B	Centr.	1974		3-3MGD	8	"		8	"		150	"	Auto.
C	"	1974		2-3MGD	8	"		8	"		150	"	"
D	"	1976		2-2MGD	8	"		6	"		100	"	"

Remarks:

Person Interviewed: A. Esposito
Title: Supt.
Investigator (signature): Everett C. Hogg
Title and Date: Supvr 5/16/84
Revision Date:

(Additional Space on Reverse Side)

Page 7

TELECON NOT

CONTROL NO 0018-C
02-8706-13

DATE 10/21/87

TIME 1400 and 1440

DISTRIBUTION
US Pipe and Foundry

BETWEEN
David Chichilitti

OF Bristol Borough Water & Sewer Authority

PHONE (215) 785-4551

AND
Donna Restivo

DISCUSSION:
I asked Mr. Chichilitti where the Edgely Well Fields were and he said that they were just east of Edgely Road and north of 3M Airport. Following the topographic map with him, I discovered sub stations which he said were where the well field is located. He said there are seven wells in the well field, but only 3 are on and used for drinking water purposes. These wells serve approximately 3,000 households, pumping about one-million gallons/day. He also mentioned that well water is combined with river water before being distributed. The depth to water is 30 feet. He mentioned a study had been done on the well field and the information was in the office.

ACTION ITEMS:
I also asked Mr. Chichilitti about surface water intakes. He told me Mr. Huxley of the Lower Bucks Surface Water Authority (215-945-1170 or 215-547-5842) would be a good source of information. He knew of intakes at Edgely, 1/4 mile from Edgely, Bristol, Marsville and Neshaminy Creek.

Donna J. Restivo

NUS 067 REVISED 0881

TELECON NO

CONTROL NO 0017-C 02-8706-13

DATE 10/22/87

TIME 1000

DISTRIBUTION
US Pipe and Foundry

BETWEEN
David Chichilitti

OF Bristol Borough Water & Sewer Authority

PHONE (215) 785-4551

AND
Donna Restivo

DISCUSSION:
I asked Mr. Chichilitti how many people were on the Bristol surface water supply. He said approximately 25,000. I also asked him where the US Steel Mill was and he said it was 7 or 8 miles North of Bristol. I asked about Rohm and Haas and he told me they receive drinking water from Bristol and their industrial water is from wells.
I asked Mr. Chichilitti about Well #10 use and he said that the well's use was discontinued in January.

Donna J. Restivo

ACTION ITEMS:

NUS 087 REVISED 0581

REFERENCE #8

NUS CORPORATION

TELECON NOTE

CONTROL NO:	DATE:	TIME
	6/25/87	0910

DISTRIBUTION:

Tenneco Polymers

BETWEEN:	OF:	PHONE:
John Rattie	Delaware River Basin Commission - Trenton	(609) 883-9500

AND: Joann Wagner (NUS)

DISCUSSION:

Uses of Delaware River downstream from site: only known use is non-contact boating - the river is very deep (up to 40') and tidal up to Trenton (15-20 miles north), too dangerous for swimming. The only surface water intake downstream is for Philadelphia.

River mile 111 - Rancocas
" " 117 - Burlington - Bristol Bridge

Intake for Phila. is at river mile 110.5; PSE&G intake at 117.2; Burlington City intake at 118.7

ACTION ITEMS:

NUS 087 REVISED 0581

REFERENCE #9

Uncontrolled Hazardous Waste Site Ranking System

A Users Manual
(HW-10)

Originally Published in
the July 16, 1982, *Federal Register*

United States
Environmental Protection
Agency

1984

REFERENCE #10

SOIL SURVEY

Burlington County New Jersey

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
NEW JERSEY AGRICULTURAL EXPERIMENT STATION
Issued October 1971

Freehold fine sandy loam, 5 to 10 percent slopes (FfC).—This soil has a profile similar to that described as typical for the series. Because runoff is moderate, erosion is a hazard. Erosion can be controlled by the use of contour farming, stripcropping, terraces, and cover crops. A permanent cover is needed in apple orchards. Most of this soil is farmed, but some of it is woodland. (Capability unit IIIe–5; woodland suitability group 1o1)

Freehold fine sandy loam, 10 to 15 percent slopes (FfD).—In farmed areas of this soil, runoff is rapid and the erosion hazard is severe. Erosion is controlled by seeding small grains or pasture plants or by using a cropping system that includes long periods in sod. Apple orchards can be kept in permanent sod. This soil is suited to trees and can be used as a habitat for wildlife. (Capability unit IVe–5; woodland suitability group 1o1)

Freehold fine sandy loam, 15 to 25 percent slopes (FfE).—This soil has short slopes in most places. The lower parts of the slopes contain seepy spots where ground water moving laterally has surfaced. Except that the subsoil is more variable in texture and thickness, the profile of this soil is similar to that described as typical for the series. Included with this soil in mapping are clayey and sandy areas.

Most of this soil is in trees, which grow well. A permanent cover of trees, shrubs, or grasses controls erosion and prevents severe siltation of streams. (Capability unit VIe–5; woodland suitability group 1r1)

Freehold fine sandy loam, clayey substratum, 2 to 5 percent slopes (FgB).—This soil has an underlying clayey layer at a depth of 40 to 60 inches. In most places this layer is a thick, very dark gray deposit that is a part of the Merchantville or Woodbury clay formations. This clayey layer is so slowly permeable that water perches on it after heavy rains and also moves laterally over it.

In most places the clay is so deep that it does not greatly affect farming. In other places, however, the perched water is so close to the surface that underdrains must be constructed above the clay layer. (Capability unit IIe–5; woodland suitability group 1o1)

Freehold loamy sand, 0 to 5 percent slopes (FhB).—Except for the loamy sand surface layer, this soil has a profile similar to that described as typical for the series. This sandy surface layer is 18 inches thick. Because of it, this soil has a lower available water capacity than Freehold fine sandy loam, 0 to 2 percent slopes, and needs more frequent irrigation. Also, this soil is lower in fertility and in organic-matter content. It warms earlier in spring but is subject to soil blowing. Crops are subject to sand blasting. Included with this soil in mapping are small areas of Holmdel soil that may need drainage.

This soil is better suited to fruit and irrigated vegetables than to corn, soybeans, hay, and pasture. Crops are protected from soil blowing by windbreaks, cover crops, and wind strips. (Capability unit IIs–6; woodland suitability group 2o1)

Freehold loamy sand, 5 to 10 percent slopes (FhC).—This soil has a surface layer of loamy sand 14 inches thick. Except for this surface layer, the profile of this soil is similar to that described as typical for the series. Runoff is moderate, and water erosion is more of a hazard than soil blowing.

Most slopes are not long, but erosion control practices are needed if these soils are to be farmed every year. On the long slopes, erosion can be controlled by contour farming, cover crops, stripcropping, or terracing. Apple orchards can be kept in permanent sod. (Capability unit IIIe–6; woodland suitability group 2o1)

Freehold sandy loam, 5 to 10 percent slopes, severely eroded (FoC3).—This soil is so severely eroded that plowing mixes the more sticky subsoil with the little original surface layer that remains. Organic-matter content is very low, and runoff is rapid. The surface soil crusts as it dries, and this crusting prevents uniform seed germination. Plant growth is irregular and poorer than on uneroded soils. Included with this soil in mapping are small areas of Collington and Westphalia soils.

This soil can be kept in good tilth by frequently adding organic matter or manure and fertilizers and by using cover crops. Cropping systems should provide small grain or sod for long periods. Gullies need to be filled. (Capability unit IVe–5; woodland suitability group 1o1)

Freehold sandy loam, 10 to 15 percent slopes, severely eroded (FoD3).—This soil is so severely eroded that plowing mixes the sticky subsoil with the remaining original surface layer. Runoff is rapid. Some slopes contain seepy spots where ground water moving laterally has surfaced.

Pasture, trees, plantings for wildlife, or other permanent cover is needed to control erosion. Black locust can be planted for posts, or pines for Christmas trees. Large amounts of organic matter are needed to improve the tilth. Gullies need to be filled. (Capability unit VIe–5; woodland suitability group 1o1)

Galestown Series

The Galestown series consists of excessively drained, nearly level or gently sloping sandy soils that have a little more clay in the subsoil than in the surface layer. Galestown soils occur along the Delaware River on a terrace that ranges from 10 to 50 feet in elevation.

In a typical profile the surface layer is very dark grayish-brown sand about 10 inches thick. The subsurface layer, about 13 inches thick, is yellowish-brown sand. The subsoil is strong-brown loamy sand about 15 inches thick. Alternating layers of dark yellowish-brown sand and strong-brown loamy sand make up the underlying material.

Permeability is rapid in forested Galestown soils and moderately rapid in plowed soils. Although the available water capacity generally is low, it is somewhat higher where these soils have a clayey substratum. Only deep-rooted plants, however, benefit from this higher capacity, and nearly all crops are irrigated. The soils warm early in spring and can be worked immediately after heavy rains. In extended hot spells some crops are scalded by heat reflected from the sand.

Galestown soils are subject to soil blowing that sandblasts crops. These soils are low in organic-matter content and fertility. Added fertilizers leach readily. Unless lime is added at frequent intervals, these soils are very strongly acid.

The native vegetation is a forest consisting mostly of mixed oaks, hickory, and scattered Virginia pines. Virginia pines have seeded naturally in areas left idle, but now they grow in only a few places. Sassafras and wild cherry are common in idle areas.

These soils were formerly used for general crops, but when irrigation was introduced, farmers gradually switched to high-value vegetables. Nearly all areas are now irrigated, and the common crops are sweet corn, peaches, snap beans, and cantaloupes. On some fields two crops are grown in a year.

Because the population is concentrated along the Delaware River, a large acreage of these soils has been taken for residential, commercial, and industrial development.

Typical profile of Galestown sand, 0 to 5 percent slopes, in a cultivated field south of the National Cemetery at Beverly:

Ap—0 to 10 inches, very dark grayish-brown (10YR 3/2) sand; very weak, fine, granular structure; very friable; abrupt, smooth boundary; horizon 8 to 12 inches thick.

A2—10 to 23 inches, yellowish-brown (10YR 5/4) sand; single grain; loose; clear, smooth boundary; horizon 10 to 18 inches thick.

B2t—23 to 30 inches, strong-brown (7.5YR 4/6) loamy sand; very weak subangular blocky structure; very friable; sand grains weakly bridged; gradual, smooth boundary; horizon 7 to 13 inches thick.

B3—30 to 38 inches, strong-brown (7.5YR 4/6) loamy sand; very weak subangular blocky structure; very friable; gradual, smooth boundary; horizon 4 to 8 inches thick.

C—38 to 60 inches, dark yellowish-brown (10YR 4/6) sand containing thin layers of strong-brown (7.5YR 4/6) loamy sand; sand is single grain and loose; loamy sand is massive and friable.

Galestown soils contain varying amounts of rounded quartzose pebbles. Although in most places the amounts are small, some areas within a mile of the Delaware River have thick beds of pebbles and cobblestones 3 to 5 feet below the surface. Because of the community development in most of these areas, they have not been mapped separately.

These soils are mostly fine sand and medium sand throughout the solum, and the texture in the C horizon is about the same.

The A1 horizon is very dark and about 4 inches thick. Plowing mixes this horizon with part of the yellowish-brown A2 horizon, and an Ap horizon is formed. The Ap horizon is 3 or 4 in value and 2 or 3 in chroma. The surface layer is sand, consisting of mostly fine sand, but not enough to make a fine sand texture. The A2 horizon is 7.5YR or 10YR in hue. Thickness of the A horizon averages about 23 inches but ranges from 18 to 27 inches.

The B horizon generally is 7.5YR in hue, but it is 10YR in places. The B2t horizon is loamy sand or sand, though it normally contains 3 to 6 percent more clay than the A horizon.

In places the C horizon has clayey layers or gravel beds. In other areas it consists of material much like that of the A and B horizons, though it has slightly less clay and silt or has thin bands of clay and silt in the upper part.

Galestown soils are associated with Klej and Sassafras soils. They lack the mottling that is common in the Klej soils, and they have less clay and silt in the subsoil than the Sassafras soils. Galestown soils have a thicker surface layer than Downer soils, and a coarser textured subsoil.

Figure 11.—Sandblasting of vegetable crops can be reduced by protecting them with narrow strips of close-growing crops. The soil is Galestown sand, 0 to 5 percent slopes.

Galestown sand, 0 to 5 percent slopes (GaA).—This soil has the profile described as typical for the series. Included with this soil in mapping are small areas of Klej and Sassafras soils and also small areas of Galestown sand, clayey substratum.

This soil is well suited to irrigated sweet corn, peaches, snap beans, and cantaloupes. The effect of soil blowing can be reduced by the use of windbreaks or cover crops, or by planting narrow strips of close-growing crops (fig. 11). Soluble fertilizers applied as needed compensate for losses though leaching. (Capability unit IVs–7; woodland suitability group 3s1)

Galestown sand, clayey substratum, 0 to 5 percent slopes (GcB).—The clayey substratum of this soil generally is at a depth of 40 to 60 inches, but in places it is only 30 inches from the surface. Otherwise the profile of this soil is similar to that described as typical for the series. Drainage is needed where the clayey substratum is near the surface. Except for drainage, farm use and management are the same as on Galestown sand, 0 to 5 percent slopes. (Capability unit IVs–7; woodland suitability group 3s1)

Holmdel Series

The Holmdel series consists of moderately well drained or somewhat poorly drained loamy and sandy soils. These soils contain small amounts of glauconite, for they generally formed on marine deposits that contain this mineral. They have a moderately high seasonal water table.

In a typical profile the surface layer is dark grayish-brown fine sandy loam about 10 inches thick. The subsoil, about 24 inches thick, is dark-brown mottled sandy clay loam. The underlying material is stratified cover for wildlife. (Capability unit VIIe-1; woodland suitability group 2r1)

Klej Series

The Klej series consists of deep, nearly level and gently sloping sandy soils that have a fluctuating water table that is moderately high late in winter. These soils are moderately well drained or somewhat poorly drained. Unlike most sandy soils in the county, they have almost as much clay in the surface layer as in the underlying layer. These soils form on terraces adjacent to the Delaware River and in the outer Coastal Plain.

In a typical profile the surface layer is dark grayish-brown sand about 10 inches thick. The next layer is light olive-brown sand about 10 inches thick. The underlying material is light yellowish-brown sand mottled with light gray over pale-yellow sand.

These soils are rapid or moderately rapid in permeability, and they have a low available water capacity. They are low in organic-matter content and fertility. But fertility is not so low on the river terraces as it is in the outer Coastal Plain, and added fertilizers do not leach so readily.

When rainfall is normal, the water table starts to rise in September or October, rises to about 2 feet from the surface late in winter or early in spring, and falls below a depth of 5 feet by June. Only deep-rooted plants benefit from the water table in summer when water is needed most. Klej soils are very strongly acid. Additions of lime are needed at frequent intervals because the lime leaches readily.

The native vegetation on river terraces is a hardwood forest that consists mostly of black oak, white oak, and hickory. In the outer Coastal Plain, pines make up much of the forest. The kind of forest depends mainly on the frequency and intensity of wildfires.

On the river terraces, Klej soils have been mostly cleared for crops. Sweet corn and peaches are grown on about 90 percent of the farmed terraces. In the outer Coastal Plain only a small acreage of Klej soils has been cleared for crops. The farmed acreage is used mostly for sweet corn, sweetpotatoes, pumpkins, and cantaloups.

Because leaching is rapid, raising the fertility level of these soils is difficult. Additions of fertilizer should be applied often and in small amounts to avoid severe losses from leaching. The soils warm early in spring, and they can be worked directly after heavy rains. The surface layer is loose and subject to soil blowing. In places sandblasting severely damages small plants. Vegetables, such as peppers and tomatoes, are sometimes scalded by the intense heat reflected from the sands.

Typical profile of Klej sand, 0 to 4 percent slopes, in a cultivated field about 1 mile south-southeast of Dellette, adjacent to Atsion Road:

Ap—0 to 10 inches, dark grayish-brown (10YR 4/2) sand; very weak, fine, granular structure; very friable, nonsticky; roots abundant; less than 1 percent rounded quartzose pebbles; abrupt, smooth boundary; horizon 7 to 12 inches thick.

AC—10 to 20 inches, light olive-brown (2.5Y 5/4) sand; single grain; loose, nonsticky; common roots; few spheroidal concretions one-quarter inch in diameter; clear, smooth boundary; horizon 6 to 15 inches thick.

C1—20 to 32 inches, light yellowish-brown (2.5Y 6/4) sand; common, medium and coarse, light-gray (2.5Y 7/2) mottles; single grain; loose, nonsticky; roots few; gradual, wavy boundary.

C2—32 to 60 inches, pale-yellow (2.5Y 7/4) sand; single grain; loose, nonsticky; less than 1 percent rounded quartzose pebbles less than 1 inch in diameter; roots few.

Klej soils contain varying amounts of rounded quartzose pebbles. In places within a mile of the Delaware River, pebbles and cobblestones form a thick bed below a depth of 3 feet. Much of this area has been developed for residential, commercial, or industrial use.

Klej soils in wooded areas normally have a very dark A1 horizon about 1 or 2 inches thick. Under the A1 horizon a bleached gray horizon has an average thickness of 3 inches but is as much as 6 inches thick in places. When plowed these two horizons are destroyed and mixed with the AC horizon to form the Ap horizon. The Ap horizon is 2.5Y or 10YR in hue and sand or fine sand in texture. The fine sand is dominant on the river terraces but also occurs in the outer Coastal Plain in places.

The AC horizon ranges from 2.5Y to 10YR in hue, is 5 or 6 in value, and ranges from 2 to 6 in chroma. Low chromas occur as mottles or as matrix colors in somewhat poorly drained areas. Texture is sand or fine sand.

The C horizon is 2.5Y or 10YR in hue, ranges from 5 to 7 in value, and from 2 to 6 in chroma. Mottles generally are faint or distinct and few to common. Texture is generally sand or fine sand, but in places it ranges from sandy loam to sandy clay. The most extensive areas of finer textured C horizons were mapped as loamy substratum soils.

Klej soils occur with the Galestown, Evesboro, Downer, Lakewood, and Atsion soils. The mottles in the Klej soils distinguish them from the Evesboro, Downer, and Lakewood soils. Klej soils are not so gray as the Atsion soils and lack the dark-brown B2h horizon that occurs in those soils.

Klej sand, 0 to 4 percent slopes (KmA).—This soil occurs mostly in the outer Coastal Plain where the sands are mostly medium and coarse. Small areas along Rancocas Creek are subject to flooding when that stream rises to its highest levels; they are flooded only during severe floods. This soil has the profile described as typical for the series. Included with this soil in mapping are areas of Klej loamy sand and of Evesboro, Downer, and Lakewood soils.

Widely spaced ditches or underdrains are used to lower the water table enough so that it does not affect crops or vehicles traveling on this soil. Where extensive areas are exposed to long wind sweeps, this soil needs protection against soil blowing. Cover crops, windbreaks, or windstripping can be used for this purpose. (Capability unit IIIw-16; woodland suitability group 3s1)

Klej sand, loamy substratum, 0 to 2 percent slopes (KnA).—This soil has a loamy substratum that is normally at a depth of 40 to 60 inches but that is only 30 inches below the surface in places. In most places this substratum is sandy clay loam, but it ranges from sandy loam to sandy clay. Although the finer textures have an increased available water capacity, this benefits only the deep-rooted plants. Except for the substratum, this soil has a profile similar to that described as typical for the series.

Where the substratum is sandy clay loam or sandy clay, underdrains should be laid above the substratum. Recharge of ground water is slow in dug ponds. (Capability unit IIIw-16; woodland suitability group 3s1)

Klej fine sand, 0 to 2 percent slopes (KoA).—Except that this soil has a higher percentage of fine sand, at least to a depth of 30 to 40 inches, its profile is similar to that described as typical for the series. These fine sands are unstable. If excavations are made in them, they flow more readily than the medium and coarse sands. The available water capacity and fertility are slightly higher in this soil than in Klej sand, 0 to 4 percent slopes. In addition, this soil has a weakly developed subsoil that has 3 to 5 percent more clay than the surface layer. This additional clay slows leaching of fertilizers somewhat.

Included with this soil in mapping are small areas of Galestown sand and Evesboro fine sand.

Widely spaced open ditches or underdrains keep the water table down where it does not interfere with farming. Maintenance of ditchbanks is more costly than on Klej sand, 0 to 4 percent slopes, and the soil is more subject to soil blowing. (Capability unit IIIw-16; woodland suitability group 3s1)

Kresson Series

The Kresson series consists of somewhat poorly drained soils that contain large amounts of glauconite because they formed in marine deposits containing large amounts of glauconite.

In a typical profile the surface layer is about 8 inches thick and consists of olive-gray fine sandy loam mottled with yellowish brown. The subsoil extends to a depth of 36 inches and is dark olive gray mottled with dark yellowish brown. It is sandy clay in the upper 12 inches and sandy clay loam below. The substratum is stratified olive-gray and dark yellowish-brown sandy loam and sandy clay loam.

The permeability is slow in the subsoil and moderately slow in the surface layer and substratum when the soil is moist and the clays are swelled. Permeability is more rapid in summer when the clay contracts and the soil cracks. The available water capacity is high. Although excess water is perched over the sandy clay subsoil for some time after heavy rains, the soils do not become completely saturated. When rainfall is normal, undrained Kresson soils have ground water in the substratum from October to May, and excess water may be perched over the subsoil in the same period.

These soils are high in natural fertility, and added fertilizers do not leach readily. Kresson soils are generally very strongly acid, and large additions of lime are needed to correct this condition. In places, the substratum is only slightly acid or nearly neutral. Organic-matter content is low in the loamy sand and is moderate in the loam and fine sandy loam.

The native vegetation is a hardwood forest consisting of mostly oak, hickory, beech, ash, redcedar, and Virginia pine. Virginia pine or redcedar normally seed in idle areas.

Kresson soils are well suited to general crops. The loamy sand is used mostly for vegetables, corn, soybeans, small grains, hay, and pasture. The loamy sand warms early and is easily worked, but it is subject to soil blowing. The Kresson fine sandy loam and loam soils are difficult to work, because the period of optimum moisture is so short. They are either too wet or too dry most of the time.

Only a very small acreage of the Kresson soils is irrigated. When rainfall is normal, deep drainage and surface drainage are needed. The ground water can be lowered by use of open ditches or underdrains. Because of the clayey subsoil, underdrains alone cannot drain off the surface waters fast enough. These soils are only moderately suitable for dug ponds.

Typical profile of Kresson fine sandy loam, 0 to 3 percent slopes, in a cultivated field one-eighth mile north of Evesboro:

Ap—0 to 8 inches, olive-gray (5Y 4/2) fine sandy loam; few, fine, prominent mottles of yellowish brown (10YR 5/8); moderate, medium, granular structure; friable, sticky and plastic when wet; glauconite content medium to high; 3 to 5 percent rounded quartzose pebbles as much as 2 inches in diameter; abrupt, smooth boundary; horizon 6 to 12 inches thick.

B21t—8 to 20 inches, dark olive-gray (5Y 3/2) sandy clay, dark olive (5Y 3/3) when crushed; many, fine, distinct mottles of dark yellowish brown (10YR 4/4); moderate to strong, coarse, angular blocky structure; very firm when moist, very hard when dry, very sticky and plastic when wet; distinct clay films on ped faces; glauconite content more than 40 percent; gradual, smooth boundary; horizon 10 to 24 inches thick.

B22t—20 to 36 inches, dark olive-gray (5Y 3/2) sandy clay loam, dark olive (5Y 3/3) when crushed; many, fine to medium, distinct mottles of dark yellowish brown (10YR 4/4); moderate, coarse and medium, subangular blocky structure; firm to friable when moist, hard when dry, sticky and plastic when wet; discontinuous thin clay films on ped faces; glauconite content high; abrupt, smooth boundary; horizon 10 to 20 inches thick.

C—36 to 60 inches, alternating layers of olive gray (5Y 4/2) and dark yellowish brown (10YR 4/4) sandy loam and sandy clay loam; many, medium, prominent mottles; massive; friable when moist, sticky and plastic when wet; unweathered glauconite content high; glauconite adds dark grains to mass color; lower brown layer is commonly iron cemented.

Kresson soils contain varying, but generally not large, amounts of quartzose gravel.

Unplowed Kresson soils have a very dark A1 horizon about 4 inches thick. When they are plowed, this horizon is mixed with the horizon below to form the Ap horizon. Kresson soils tend to have a darker Ap horizon than other soils of the county that have the same natural drainage. The Ap horizon is 5Y or 2.5Y in hue and 3 or 4 in value. Textures are loam, fine sandy loam, and loamy sand.

The B horizon is mostly 5Y in hue, but in places it is 2.5Y. It is 3 or 4 in value and ranges from 2 to more than 4 in chroma. Mottles are generally prominent. They are 10YR or 5YR in hue, 4 or 5 in value, and range from 4 to 8 in chroma. Mottles range from common to many and are generally fine or medium. In most places the B horizon is mainly sandy clay, but commonly it is sandy clay loam in some part. Structure is generally blocky or angular blocky, but it tends to be prismatic.

Most strata of the C horizon are friable and appear porous. All are highly glauconitic, and when they become wet, the clays swell and are slowly permeable. In many places iron sheets prevent normal movement of water downward.

Kresson soils are associated mainly with Marlton, Colemantown, and Adelphia soils. They are more gray than

B3—14 to 20 inches, brownish-yellow (10YR 6/6) sand; single grain; large roots concentrated in this horizon; common spheroidal nodules as much as one-eighth inch in diameter; gradual, wavy boundary; horizon 6 to 20 inches thick.

C—20 to 60 inches, light yellowish-brown (10YR 6/4) sand; single grain; nodules diminish in number with depth.

In places Lakewood soils contain rounded quartzose pebbles, but generally not in large amounts. In places they have a dark or very dark A1 horizon that is as much as 4 inches thick. This horizon is missing in many places, and where the soils are cultivated, this horizon is destroyed.

In places Lakewood soils have a discontinuous dark brown or very dark brown horizon about 1 to 4 inches thick in the upper part of the B horizon. This horizon is present in less than 25 percent of the acreage. It ranges from 5YR to 10YR in hue, from 3 to 5 in value, and from 2 to 8 in chroma. In places it contains a few iron concretions. The lower part of the B horizon ranges from 2.5Y to 10YR in hue, is 5 or 6 in value, and ranges from 4 to 6 in chroma.

The C horizon ranges from 4 to 6 in value and from 4 to 8 in chroma. Where there are underlying loamy layers, adjacent layers are as low as 1 in chroma.

Lakewood soils are associated mostly with Lakehurst, Evesboro, Woodmansie, and Klej soils. Lakewood soils lack the mottling common to Lakehurst and Klej soils and the sandy loam subsoil common to Woodmansie soils. Lakewood soils are more deeply bleached than Evesboro soils.

Lakewood sand, 0 to 5 percent slopes (LtB).—This soil is so rapidly permeable that runoff occurs only during intensive rainfall. It has the profile described as typical for the series. Included with this soil in mapping are small areas of Lakehurst, Woodmansie, and Evesboro soils. The Lakehurst soils are in low positions. Also included are small areas that have slopes of more than 5 percent, areas that have a loamy substratum, and areas of fine sand.

Most of this soil is in woodland. Scrub oak provides food for the deerherd in fall. Protection from wildfires is the greatest management need if this soil is to provide trees for pulpwood. The trees also increase the amount of rainfall that becomes ground water. (Capability unit VIIs–8; woodland suitability group 5s1)

Lakewood sand, 5 to 10 percent slopes (LtC).—Because runoff is moderate and the sand is loose, erosion is likely where this soil is without cover. Included with this soil in mapping are small areas of Woodmansie, Evesboro, and Downer soils. (Capability unit VIIs–8; woodland suitability group 5s1)

Lakewood sand, 10 to 15 percent slopes (LtD).—On this soil, most slopes are short and runoff is rapid. Because of this runoff and because the sand is loose, erosion is severe where this soil is bare. A permanent vegetative cover is needed to keep erosion and deposition at a minimum. (Capability unit VIIs–8; woodland suitability group 5s1)

Lakewood sand, thick surface, 0 to 5 percent slopes (LuB).—This soil is extremely low in fertility and available water capacity. It has a bleached horizon that ranges from 12 to 20 inches in thickness, but average thickness is 15 inches. Except that it has a thicker surface layer, the profile of this soil is similar to that described as typical for the series.

The low fertility of this soil is reflected by the very low density in the forest stand. Where this soil is used for lawns or landscape plants, intense fertilization and watering are needed. (Capability unit VIIs–8; woodland suitability group 5s1)

Lakewood sand, loamy substratum, 0 to 5 percent slopes (LvB).—This soil has sandy loam or sandy clay loam layers mostly at a depth of 40 to 60 inches, but in places at 30 inches. Otherwise this soil has a profile similar to that described as typical for the series.

Because of the finer substratum layers, this soil has more water that is available to deep-rooted trees. (Capability unit VIIs–8; woodland suitability group 5s1)

Lakewood fine sand, 0 to 5 percent slopes (LwB).—Except for the fine sand surface layer that extends to a depth of 30 inches in most places, this soil has a profile similar to that described as typical for the series. This soil has a higher available water capacity than Lakewood sand, 0 to 5 percent slopes. Shear strength and stability are lower, because of the more uniform size of the sand. (Capability unit VIIs–8; woodland suitability group 5s1)

Lakewood fine sand, loamy substratum, 0 to 5 percent slopes (LyA).—This soil has a fine sand surface layer that extends to a depth of 30 to 40 inches and has sandy loam or sandy clay loam layers in the substratum. The fine sand has low shear strength and stability. Otherwise its profile is similar to that described as typical for the series. (Capability unit VIIs–8; woodland suitability group 5s1)

Made Land

Three units of Made land have been mapped—Made land, dredged coarse material; Made land, dredged fine material; and Made land, sanitary fill.

Made land, dredged coarse material (Ma).—This is mostly coarse material dredged from the Delaware River or the Bass River and pumped into diked areas beside the rivers to settle. Boulders, cobblestones, and pebbles settle in this material (fig. 16). Fine material settles in the most distant parts of the ponded area.

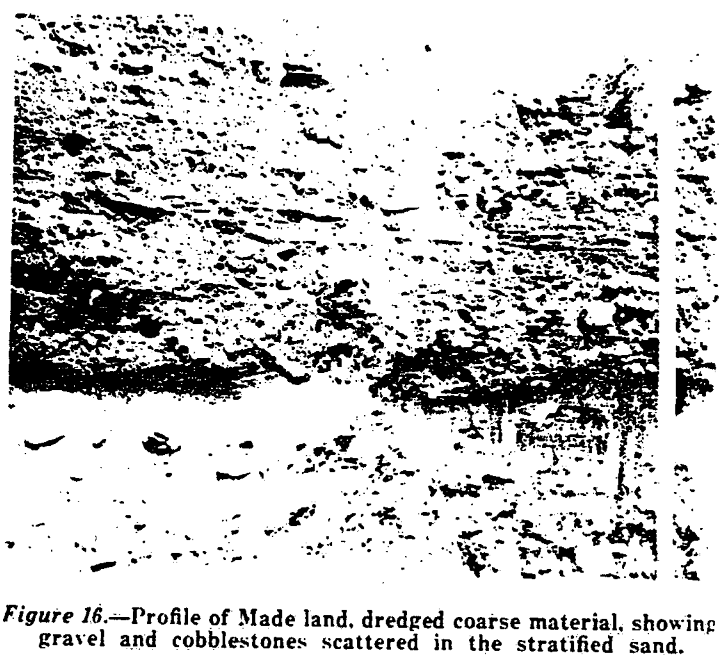


Figure 16.—Profile of Made land, dredged coarse material, showing gravel and cobblestones scattered in the stratified sand.

and sands occupy most of the area between the fine material and the boulders, cobblestones, and pebbles. The deposits are 5 to 20 feet thick along the Delaware River and 3 to 8 feet thick along the Bass River.

In the Palmyra area, Made land is very sandy and extremely low in fertility. After the dredged material was deposited, the area remained bare for a long time. It was subject to severe soil blowing until it was limed, fertilized, seeded, and tied down with stakes and twine. It was seeded with tall fescue, which provided an excellent cover.

On Hawk Island at Riverside, the dredged material contains large amounts of mica, probably from the Wissahickon schist at the bottom of the river. The material includes enough fines to make revegetation possible. Many perennial weeds, river birch, sycamore, black locust, red maple, boxelder, and willow invade readily. In this area, the material is being dredged again as a source of sand and gravel.

South of New Gretna, adjacent to the Bass River, are several areas of gravel, sand, silt, and clay. These areas are mostly sand, but they contain more silts than the Made land along the Delaware River.

This Made land is rapidly permeable and subject to severe soil blowing. Runoff is low and fertility is very low. Perennial grasses can be seeded to reduce soil blowing. Made land, dredged coarse material, is used primarily as a receiving area for dredging operations needed to keep the river channels open. In some areas the material is used as fill or as a source of gravel and sand. Some areas are used as sites for sanitary land fills.

Made land, dredged coarse material, is not suited to crops. Because of the high population along the Delaware River, it is not used for wildlife habitats. Some sites have been developed for industry; others have a potential for port and marine development. (Capability and woodland suitability unclassified)

Made land, dredged fine material (Mf).—This land type consists mostly of fine material dredged from the Delaware River and pumped into diked areas. The source of this material is mostly the thick clay beds of the Magothy Formation. Deposits are 10 to 20 feet thick. Thin sandy layers are mixed with the clay in places. Boulders, cobbles, pebbles, and sand generally are in the discharge area. The pumped silts and clays normally are held in suspension for some time before they settle, but where clay beds are dredged from the river bottom, the clay also comes out of the pipe as partly rounded masses 2 to 10 inches in diameter (fig. 17). In summer the clay cracks severely as it dries. Permeability is slow; runoff is high.

This land is not suitable for crops. It is used primarily for industrial development. Where large areas such as parking lots are to be paved, a permeable subbase is needed. (Capability and woodland suitability unclassified)

Made land, sanitary fill (Mg).—This land type consists of areas used for rubbish disposal and then covered by soil. Normally a series of trenches are dug, and rubbish, including garbage, metal, glass, wood, building foundation materials, industrial wastes, and many other materials, is dumped into them. As the

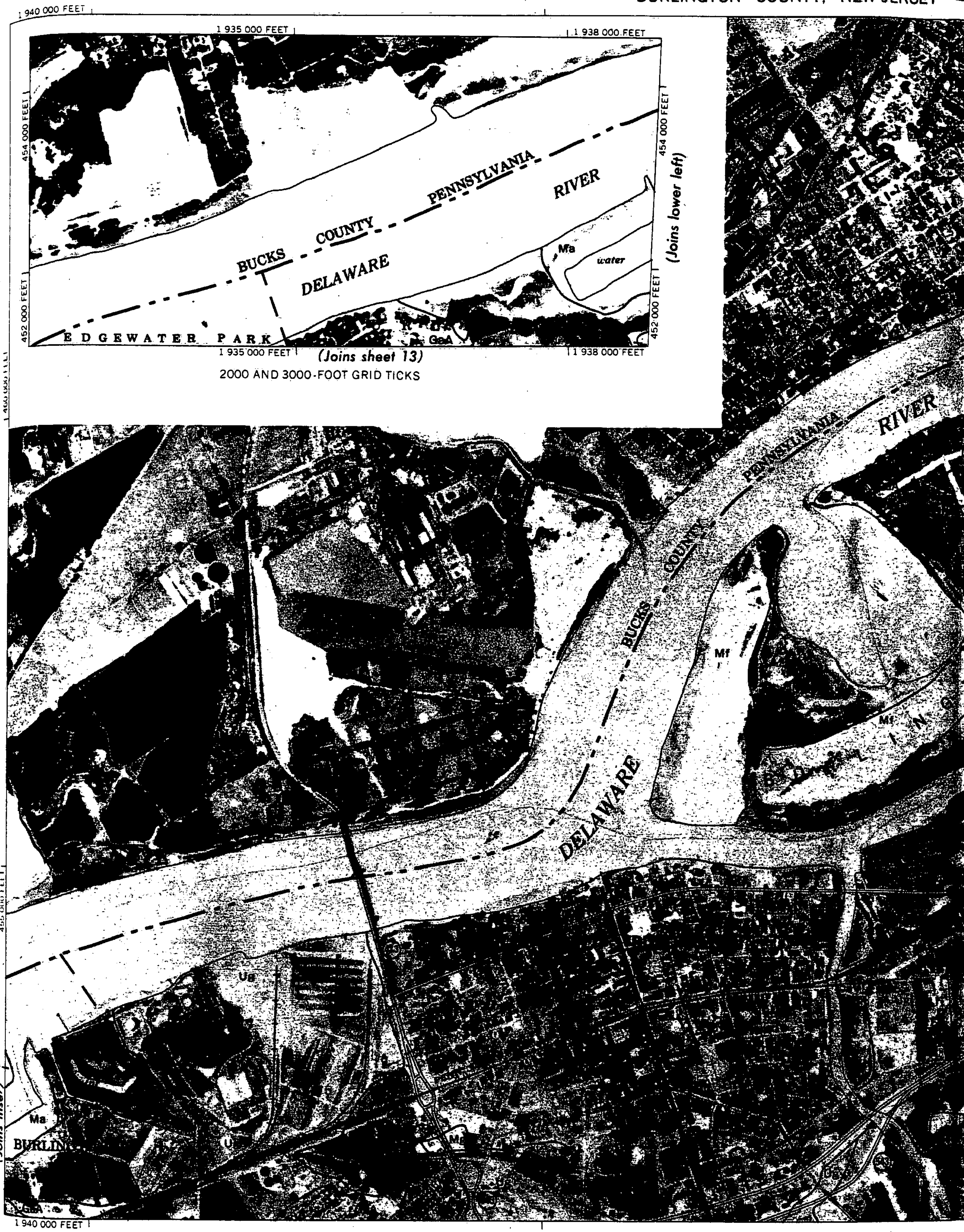
Figure 17.—Top, dredge discharge area and cone of partly rounded clay masses; *bottom,* partly rounded clay masses at the discharge area.

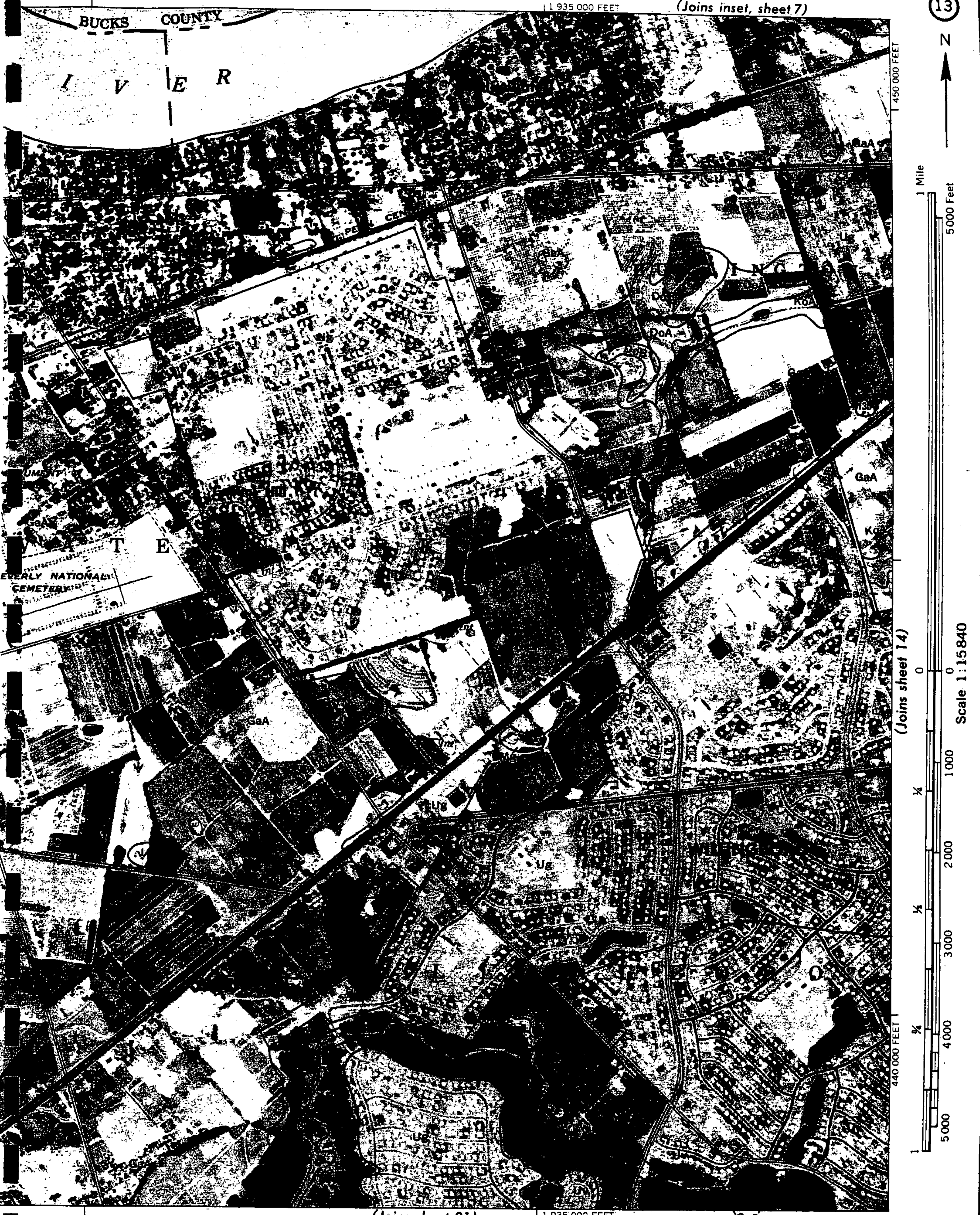
trenches are filled, the refuse is covered by the excavated soil. Land fills are subject to uneven settling and the formation of hydrogen sulfide as the organic material decays. Some fill areas are formed by filling low wetlands.

Some sanitary land fills are designed to be used again for land fills after allowing time for decomposition of the rubbish. Some areas have been converted to parks. Limitations are severe for use of the areas for crops, woodland, septic tank disposal fields, or building sites. Limitations are moderate for use of the area for wildlife habitats. (Capability and woodland suitability unclassified)

Marlton Series

The Marlton series consists of nearly level to sloping, moderately well drained and well drained soils that contain large amounts of glauconite. These soils occur in high positions. They formed in marine depos-


1 940 000 FEET
1 935 000 FEET
1 938 000 FEET
454 000 FEET
452 000 FEET
PENNSYLVANIA
RIVER
BUCKS
COUNTY
DELAWARE
Ma
water
EDGEWATER PARK
GeA
(Joins lower left)
(Joins sheet 13)
2000 AND 3000-FOOT GRID TICKS
Mf
Ua
U
Ma
BURLIN
(Joins inset)
GeA
1 940 000 FEET


1 935 000 FEET
(Joins inset, sheet 7)
13
N
BUCKS COUNTY
I V E R
450 000 FEET
1 Mile
5000 Feet
GaA
Ug
DoA
Ko
EVERLY NATIONAL
CEMETERY
(Joins sheet 14)
Scale 1:15840
0
1000
2000
3000
4000
5000
¼
½
¾
1
440 000 FEET
(Joins sheet 21)
1 935 000 FEET
SgC

N

(Joins sheet 7)

1 940 000 FEET

450 000 FEET

(Joins sheet 13)

440 000 FEET

1 940 000 FEET

(Joins sheet 22)

1 Mile

5000 Feet

0 ¼ ½ ¾ 1

0 1000 2000 3000 4000 5000

Scale 1:15 840

REFERENCE #11

02-8412-15/NJH9 HAZARDOUS WASTE INVESTIGATION 83-0

Inspector: Mike Kramer MK
Location: Tenneco Chemical

Date: April 26, 197

St: Beverly Road

Page 1

Town: Burlington Twp.

County: Burlington

Lot:

Block:

Origin of Complaint: Mrs. Tancredi (2-6874)

Complaint: Discoloration of water and soil in fill area. PVC dumped onsite.

Findings:

Tenneco Chemicals is currently using the area for the deposition of sludge from their wastewater treatment process. The sludge originates from their primary activated sludge treatment plant and is settled out into 3 settling lagoons. From the lagoons the sludge is placed in a fill located on the property. The waste stream received at the plant consists of mostly surfacants. Iron salts and lime are added to the wastewater to facilitate flocculation. The greenish tint in the effluent is caused by the iron salts according to Mr. Cottel, the technical supervisor.

The fill area itself is surrounded by dredged sediment from the Delaware River. Clay was abundant in the fill area and several large pools of water were lying on top of the fill. A red streak approximately 270 ft^2 was observed in the immediate area. It appeared to originate from underneath the soil surface. It was speculated by myself and Mr. Cottel that this might be iron. An anaylsis of the material will be sent to this office.

George -
Keep on top of this
(1) get sample when you visit site
(2) Check with B. Patel
did Tenneco submit analysis
did we receive it yet

C

02-842-15/NJH

Betz • Converse • Murdoch • Inc. BCM

Consulting Engineers, Planners and Architects

April 9, 1980

Page 2

State of New Jersey
Department of Environmental Protection
Hazardous Waste Div.
32 East Hanover St.
Trenton, NJ 08625

Attention: Mr. George Smajda

Dear Mr. Smajda:

The samples submitted February 26, 1980 were analyzed in the following manner:

Leachates were prepared according to the New Jersey state leachate procedure except the samples were used as received - the drying step was omitted.

The leacates were analyzed for volatile pollutants by GC/MS using the EPA's recommended purge and trap procedure. Results are as follows:

Purge & Trap GC/MS Volatiles	Leachate 2637	Leachate 2638	Leachate 2639	Leachate 2640	Leachate 2641	Leachate 2643
Methylene Chloride		3	2	2	13	2
Acetone	300	~2200	130	280	1200	200
1PA		~200				
Chloroform	50	51	29	49	295	2244
1,1-Dichloroethane			(tent) 1			
Vinyl isopropyl ether					(tent) 20	
Benzene				13		
Toluene					5	
Trichloroethylene	106		8.9		4.9	0.9
Perchloroethylene	0.6	1.5			1.5	1.0

Should you have any questions regarding the above analysis, please do not hesitate to contact us.

Very truly yours,

Frank J. Kernozek

Frank J. Kernozek, PhD.
Section Manager
Laboratory Services

/nlp
cc: Dave Schrier

Eastern Group

One Plymouth Meeting Mall • Plymouth Meeting, PA 19462 • Phone: 215 • 825-3800 • TWX 510-660-8034

Attachment D

Page 3

April 9, 1980

A0091 — Copolymer & Homopolymer dragout Sludge (solid)
A0092 — Plastisol A dragout sludge (s
A0093 — Plastisol B dragout sludge (s
A0094 — Silt from the storm water retention Pond (solid)
A0095 — Staging area solids
A0096 — Influent liquid storm po
A0097 — Effluent plant sludge (s

State of New Jersey
Department of Environmental Protection
Hazardous Waste Div.
32 East Hanover St.
Trenton, NJ 08625

Attention: Mr. George Smajda

Dear Mr. Smajda:

The samples submitted February 26, 1980 were analyzed in the following manner:

Leachates were prepared according to the New Jersey state leachate procedure except the samples were used as received - the drying step was omitted.

The leacates were analyzed for volatile pollutants by GC/MS using the EPA's recommended purge and trap procedure. Results are as follows:

Purge & Trap GC/MS Volatiles	A0091 Leachate 2637	A0092 Leachate 2638	A0093 Leachate 2639	A0094 Leachate 2640	A0095 Leachate 2641	A0097 Leachate 2643
Methylene Chloride, ppb		3	2	2	13	2
Acetone, ppb	300	~2200	130	280	1200	200
IPA, ppb		~200				
Chloroform, ppb	50	51	29	49	295	2244
1,1-Dichloroethane, ppb			(tent) 1			
Vinyl isopropyl ether, ppb					(tent) 20	
Benzene, ppb				13		
Toluene, ppb	106				5	
Trichloroethylene, ppb	0.6	1.5	8.9		4.9	0.9
Perchloroethylene, ppb					1.5	1.0

Should you have any questions regarding the above analysis, please do not hesitate to contact us.

Very truly yours,

Frank J. Kernozek, PhD.
Section Manager
Laboratory Services

/nlp
cc: Dave Schrier

(11)

Page 4

TO Howard Tompkins, DWR Region V

FROM Kevin Gashlin, BHW Kg

DATE 4/14/82

SUBJECT Tennaco Chemicals, Burlington

As per your request in March, 1982, I have reviewed the processes employed by the subject company through consultation with facility engineer Bob Patel. I have derived the following information.

Tennaco is permitted to landfill non-hazardous waste generated by their processes. Liquids generated by their processes undergo primary and secondary treatment and are then pumped to lagoons where the digested material dries. Drying takes four to six months. At the end of this time, the sludge is mixed with soil excavated from the landfill at a 1/1 ratio. The wall of the lagoon is then broken down and the mixed material is deposited in the landfill.

I believe that this process is essentially the same as you outlined in our telephone conversation. This procedure is permitted and approved by the Solid Waste Administration.

00 27-B

02-8412-15/NJH9

C

Permit No.: NJ00 .201

Name of Permittee: Tenneco Chemicals, Inc.

Effective Date: June 28, 1974

Expiration Date: June 28, 1979

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT TO DISCHARGE

In reference to the application received from the above-mentioned permittee for a permit authorizing the discharge of pollutants in compliance with the provisions of the Federal Water Pollution Control Act, as amended by the Federal Water Pollution Control Act Amendments of 1972, P. L. 92-500, October 18, 1972 (33 U.S.C. §§1251-1376) (hereinafter referred to as "the Act"), Tenneco Chemicals, Inc., P.O. Box 2, Piscataway, New Jersey 08854

(hereinafter referred to as "the Permittee")

is authorized by the Regional Administrator, Region II, U.S. Environmental Protection Agency, to discharge from: its Plastics Division plant located in Burlington, Burlington County, New Jersey 08016

to receiving waters named Marter's Ditch, a tributary of the [illegible]

in accordance with the following conditions:

1. All discharges authorized herein shall be consistent with the terms and conditions of this permit; facility expansions, production increases or process modifications which result in new or increased discharges of pollutants must be reported by submission of a new NPDES application, or if such new or increased discharge does not violate the effluent limitations specified in this permit, by submission to the Regional Administrator of notice of such new or increased discharges of pollutants; the discharge of any pollutant more frequently than or at a level in excess of that identified and authorized by this permit shall constitute a violation of the terms and conditions of this permit.

2. After notice and opportunity for a public hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

a. Violation of any terms or conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

3. Notwithstanding Condition 2 above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation upon such pollutant in this permit, the Regional Administrator shall revise or modify this permit in accordance with the toxic effluent standard or prohibition and so notify the permittee.

4. The permittee shall allow the Regional Administrator or his authorized representative and/or the authorized representative of the State water pollution control agency, in the case of non-Federal facilities, upon the presentation of his credentials:

a. To enter upon the permittee's premises in which an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit;

b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

c. To inspect at reasonable times any monitoring equipment or monitoring method required by this permit;

d. To sample at reasonable times any discharge of pollutants.

5. The permittee shall at all times maintain in good working order and operate as efficiently as possible any facilities or systems of treatment or control installed or utilized by the permittee to achieve compliance with the terms and conditions of this permit.

6. The issuance of this permit does not convey any property rights either in real estate or material, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of rights, nor any infringement of Federal, State or local laws or regulations; nor does it obviate the necessity of obtaining State or local assent required by law for the discharge authorized.

7. This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

8. The specific effluent limitations and other pollution controls applicable to the discharge permitted herein are set forth in the following conditions. The following conditions also set forth self-monitoring and reporting requirements. Unless otherwise specified, the permittee shall submit duplicate original copies of all reports to the head of the State water pollution control agency and the Regional Administrator. Except for data determined to be confidential under Section 308 of the Act, all such reports shall be available for public inspection at the office of the Regional Administrator. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Act.

Page 8

9. <u>General Limitations</u>.

a. The permittee shall not discharge hazardous substances into or upon navigable waters or adjoining shorelines in quantities defined as harmful in regulations promulgated by the Administrator pursuant to Section 311(b)(4) of the Federal Water Pollution Control Act, as amended. Nothing in this permit shall be deemed to preclude the institution of any legal action nor relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Federal Water Pollution Control Act, as amended, or under any other Federal or State law or regulations.

b. Except as specifically authorized in this permit, the permittee shall not discharge floating solids or visible foam.

c. <u>Initial Effluent Limitations</u>. During the period beginning on the effective date of this permit and lasting until December 31, 1975, discharges shall be limited by the permittee as specified below:

Discharge Serial Number	Parameter	Discharge Limitation in kg/day (lbs/day) - Gross: Daily Average	Discharge Limitation in kg/day (lbs/day) - Gross: Daily Maximum	Other Limitations: Average	Other Limitations: Maximum
001	pH Range(units)			5.6-9.0	
	Temperature °C(°F)				
	Winter(Nov.-Apr.)			18(65)	26(79)
	Summer(May-Oct.)			26(78)	31(88)
	Phenols	.32 (.7)	1.5(3.2)		
	Chemical Oxygen Demand	536 (1180)	764(1680)		
	Total Suspended Solids	222(490)			
	BOD 5	97 (214)			
	Chromium-total				1mg/liter*
	Zinc-total				1mg/liter*

*If the permittee does not use a chromium or zinc corrosion inhibitor, these limits do not apply.

Page 9

10. Required Effluent Discharge. During the period beginning December 31, 1975, and lasting until the date of expiration of this permit, discharges shall comply with Condition 9(c) above and shall not exceed the values listed below for those parameters indicated:

Discharge Serial Number	Parameter	Discharge Limitation in kg/day (lbs/day)-Gross Daily Average	Daily Maximum	Other Limitations Average	Maximum
001	pH Range(units)			6.0 - 9.0	
	Fecal Coliform (MPN/100 ml)			200	400
	BOD_5	78(172)	152(334)		
	Total Suspended Solids	212(465)	384(846)		

Superseded see copy Received on 3/31/77

Superseded see copy received on 6/2/77

Page 10

10. **Required Effluent Discharge.** During the period beginning July 1, 1977 and lasting until the date of expiration of this permit, discharges shall comply with Condition 9(c) above and shall not exceed the values listed below for those parameters indicated:

Discharge Serial Number	Parameter	Discharge Limitation in kg/day (lbs/day) - Gross: Daily Average	Daily Maximum	Other Limitations: Average	Maximum
001	pH Range (units)			6.0 - 9.0	
	Fecal Coliform (MPN/100 ml)			200	400
	BOD_5	78 (172)	152 (334)		
	Total Suspended Solids	212 (465)	384 (846)		
002	pH Range (units)			6.0 - 9.0	
	Total Suspended Solids				50 mg/1
	Total Organic Carbon				10 mg/1

Discharge 002 shall be analyzed for pH, Total Suspended Solids, and Total Organic Carbon once per month in dry weather and once per month after a rainfall event.

Any untreated overflow from facilities designed, constructed and operated to treat the volume of runoff from raw materials or product which is associated with a 10-year, 24-hour rainfall event shall not be subject to the pH, TSS, and TOC limitations.
The following limitation shall become effective on October 21, 1978:
The concentration of vinyl chloride in each inprocess wastewater stream containing greater than 10 ppm vinyl chloride measured immediately as it leaves a piece of equipment and before being mixed with any other inprocess wastewater stream is to be reduced to no more than 10 ppm by weight before being mixed with any other inprocess wastewater stream which contains less than 10 ppm vinyl chloride: before being exposed to the atmosphere, before being discharged to a wastewater treatment process or before being discharged untreated as a wastewater. The paragraph does apply to water which is used to displace vinyl chloride from equipment before it is opened to the atmosphere in accordance with §61.64(a) (2), but does not apply to water which is used to [illegible] equipment after the equipment has already been opened to the atmosphere in accordance with §61.64(a) (2). The above vinyl chloride data shall be submitted to the Environmental Protection Agency and to the New Jersey Department of Environmental Protection every six months.

Page 11

11. Schedule of Compliance.* The permittee shall comply with the following schedule and shall report to both the Regional Administrator and the State Agency within 14 days following each date on the schedule detailing its compliance or noncompliance** with the schedule date and requirement:

(a) The permittee shall complete an engineering report and submit it to the State Agency in accordance with State requirements*** by September 28, 1974;

(b) The permittee shall complete final plans and specifications for the treatment facilities and submit it to the State Agency in accordance with State requirements*** by December 28, 1974;

(c) The permittee shall start construction of its facilities by April 28, 1975;

(d) The permittee shall complete construction of the facilities by October 28, 1975;

(e) The permittee shall attain the operational levels required to achieve the limits specified by December 31, 1975.

*If the time period allotted for the completion of an interim requirement specified above is greater than 9 months, then the permittee shall submit a report detailing its progress toward completion of the interim requirement at the end of the first 9-month period and at the end of each succeeding 9-month period (including, of course, the report, specified above, required within 14 days following the specified completion date).

**Each notice of noncompliance shall include the following information:

(1) A short description of the noncompliance;
(2) A description of any actions taken or proposed by the permittee to comply with the elapsed schedule requirement without further delay;
(3) A description of any factors which tend to explain or mitigate the noncompliance; and
(4) An estimate of the date permittee will comply with the elapsed schedule requirement and an assessment of the probability that permittee will meet the next scheduled requirement [illegible]

***State Requirements: All reports, plans and/or specifications that propose new or modified waste treatment and/or [illegible] facilities must be approvable and signed, and sealed, by a professional engineer, licensed to practice in the State in which the facilities are to be built.

12. Monitoring and Recording. The permittee shall monitor and record the quantitative values of each discharge according to the following schedules and other provisions: For each discharge and for each Sampling Schedule listed below, the flow (in gallons per day) shall be measured.* Where net values are listed in Conditions 9(c) and/or 10 the surface water intake is to be sampled with the same frequency and type of sample as specified below for each required parameter.

(a) Sampling Schedule I - The permittee shall submit a comprehensive monitoring report by August 28, 1974. The permittee shall take daily 24-hour composite samples** of intake water (surface water body only) and of each discharge over a typical production period of at least 7 consecutive operating days. One or two grab samples per day shall also be taken during maximum anticipated waste loadings (i.e. maximum production periods, batch dumping, washing operations). This sampling program shall be carried out to insure complete, reliable results which will typify the plant's daily discharge.

Superseded see 6/2/77

In lieu of this sampling program the permittee may submit documentation indicating the results of previous sampling programs for all or part of the required parameters. The data utilized in obtaining the average and maximum values which appear in the permit application can be substituted for this report if the reported values can be shown to be representative of the permittee's current discharge(s). The following parameters are to be reported on: All parameters listed in Condition 9(c)*** and/or in Condition 10, and Ammonia(N), Kjeldahl Nitrogen(N), Nitrate(N), and BOD_{20}****

Sampling Schedule II - This schedule shall commence upon completion of Schedule I and continue until start-up of the treatment facilities required to comply with the effluent limitations of Condition 10.

The permittee shall take 24-hour composite samples** on a monthly basis for the following parameters: All parameters listed in Condition 9(c)*** and/or in Condition 10, and Ammonia(N), Kjeldahl Nitrogen(N), Nitrate(N), and BOD_{20}****

*For all continuous discharges, flow shall be measured and recorded continuously; for intermittent discharges, the flow shall be measured and reported at a frequency coinciding with the most frequently sampled parameter. Methods, equipment, installation and procedures shall conform to those prescribed in the Water Measurement Manual, U. S. Department of the Interior, Bureau of Reclamation, Washington, D. C., 1967.

**Grab samples only shall be taken for analysis of temperature, oil and grease, pH and any bacteriological analysis. Care shall be exercised when collecting a composite sample [illegible] the proper preservative is present in the sample container [illegible] sample collection. Depending on the analysis [illegible] different containers and preservation [illegible] required. Samples shall be analyzed as quickly [illegible] collection and in no case shall the maximum holding [illegible] in the [illegible]

12. Monitoring and Recording. The permittee shall monitor and record the quantitative values of each discharge according to the following schedules and other provisions: For each discharge and for each Sampling Schedule listed below, the flow (in gallons per day) shall be measured.* Where net values are listed in Condition 9(c) and/or 10 the surface water intake is to be sampled with the same frequency and type of sample as specified below for each required parameter.

(a) Sampling Schedule I - This schedule shall commence immediately and continue until start-up of the treatment facilities required to comply with the effluent limitations of Condition 10.

The permittee shall take 24-hr. composite samples** on a monthly basis for the following parameters:

All parameters listed in Condition 9(c)*** and/or in Condition 10, and Ammonia(N), Kjeldahl Nitrogen(N), Nitrate(N), and BOD_{20}****

*For discharge 001, flow shall be measured and recorded continuously; for discharge 002, the flow shall be measured and reported at a frequency coinciding with the most frequently sampled parameter. Methods, equipment, installation and procedures shall conform to those prescribed in the Water Measurement Manual, U. S. Department of the Interior, Bureau of Reclamation, Washington, D.C., 1967.

** Grab samples only shall be taken for analysis of dissolved oxygen, oil and grease, pH and any bacteriological analysis. Care shall be exercised when collecting a composite sample such that the proper preservative is present in the sample container during sample collection. Depending on the analysis to be conducted, several different containers and preservation techniques may be required. Samples shall be analyzed as quickly as possible after collection and in no case shall the maximum holding time exceed that contained in the references cited in Condition 12(e).

received
4/2/77

Sampling Schedules III and IV - Sampling Schedule III shall commence upon start-up of the treatment facilities required to comply with Condition 10. Schedule IV shall commence upon notification by the Regional Administrator. Commencement of Schedule IV will coincide with the effluent values reaching satisfactory steady state conditions.

Discharge Serial No.	Parameter	Minimum Freq. of Analysis Sched. III	Minimum Freq. of Analysis Sched. IV	Sample Type
001	pH	Weekly	2/monthly	Grab
	Fecal Coliform	Weekly	2/monthly	Grab
	BOD_5	Weekly	2/monthly	24 hr. composite
	Phenols	Weekly	2/monthly	24 hr. composite
	Total Suspended Solids	Weekly	2/monthly	24 hr. composite
	Temperature	Weekly	2/monthly	Grab
	Chemical Oxygen Demand	Weekly	2/monthly	24 hr. composite
	Zinc-total***	Monthly	Monthly	24 hr. composite
	Chromium-total***	Monthly	Monthly	24 hr. composite
	Ammonia(N)	Monthly	Monthly	24 hr. composite
	Kjeldahl Nitrogen(N)	Monthly	Monthly	24 hr. composite
	Nitrate(N)	Monthly	Monthly	24 hr. composite
	BOD_{20}****	Monthly	Monthly	24 hr. composite

(b) Modifications to Sampling Schedules - The permittee may submit for approval an alternate schedule(s) to account for any realignment of discharges, for substitutions of parameters to be sampled, for analytical and sampling methods to be utilized, for elimination of intake sampling, for realignment of sampling locations so that concentrations to be measured are within reliable sensitivity ranges of the analytical techniques, and for the compositing by volume of individual discharge samples to make a single plant sample. With regard to substituting parameters such as TOC or COD for BOD, the permittee shall provide test data to support the correlation between the parameters. As for elimination of intake monitoring, the company shall provide sufficient data to establish the average levels of intake parameters and demonstrate that any variations in the intake characteristics would have minimum impact upon the permittee's discharge(s). In such cases, the alternate monitoring schedule shall provide for periodic verification of parameter correlations and intake parameter levels.

If the permittee monitors any pollutant more frequently than is required by this permit, he shall include the results of such monitoring in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA Form 3320-1 (10-72)) in Condition 12(f). Such increased frequency shall be indicated on the Discharge Monitoring Report Form.

***If the permittee does not use a zinc or [illegible] [illegible], it does not have to sample for zinc or [illegible].

****[illegible] values for this parameter shall be [illegible] [illegible] [illegible], 17 and 20 days.

(c) Quality Control - Adequate care shall be maintained in obtaining, recording, and reporting the required data on effluent quality and quantity, so that the precision and accuracy of the data will be equal to or better than that achieved by the prescribed standard analytical procedures.

The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at sufficiently frequent intervals to ensure accuracy of measurements.

Sampling shall be representative of the volume and quality of effluent discharged over the sampling and reporting period.

The permittee is responsible for assuring that the methodology used is reliable for their specific wastes in their laboratory. The permittee must be able to demonstrate to the Regional Administrator that they have a viable quality control program.

(d) Recording - The permittee shall maintain and record the results of all required analyses and measurements and shall record, for all samples, the date and time of sampling, the sample method used, the dates analyses were performed, who performed the sampling and analyses, and the results of such analyses.

All records shall be retained for a minimum of 3 years, such a period to be extended during the course of any unresolved litigation or when so requested by the Regional Administrator. The permittee also shall retain all original strip-chart recordings from any continuous monitoring instrumentation any any calibration and maintenance records for a minimum of 3 years, such period to be extended during the course of any unresolved litigation or when so requested by the Regional Administrator.

The permittee shall provide the above records and shall demonstrate the adequacy of the flow measuring and sampling methods upon request of the Regional Administrator. The permittee shall identify the effluent sampling point used for each discharge pipe by providing a sketch or flow diagram, as appropriate, showing the locations.

(e) Sampling and Analysis

Following promulgation of guidelines establishing [illegible] procedures for the analysis of pollutants, published [illegible] Section 304(g) of the Federal Water Pollution Control [illegible] all sampling and analytical methods used [illegible] requirements specified above shall [illegible]. If the Section 304(g) guidelines [illegible] for any pollutants required to be [illegible] until such guidelines are promulgated, [illegible]

Regional Administrator, conform to the latest edition of the following references:

> Standard Methods for the Examination of Water and Wastewaters, 13th Edition, 1971 American Public Health Association, New York, New York 10019.
>
> A.S.T.M. Standards, Part 23, Water; Atmospheric Analysis, 1972, American Society for Testing and Materials, Philadelphia, Pennsylvania 19103.
>
> W.Q.O. Methods for Chemical Analysis of Water and Wastes, April 1971, Environmental Protection Agency, Water Quality Office, Analytical Quality Control Laboratory, NERC, 1014 Broadway, Cincinnati, Ohio 45268.

(f) Reporting

The results of the above monitoring requirements shall be reported by the permittee in the units specified in Conditions 9(c) and 10. A report or a written statement shall be submitted even if no discharge occurred during the reporting period. A report shall also be submitted if there have been any modifications in the waste collection, treatment, and disposal facilities, changes in operations procedures, or other significant activities which alter the quality and quantity of the discharges or otherwise concern these Conditions. Permanent elimination of a discharge shall be promptly reported by the permittee in writing to the Regional Administrator.

The permittee shall include in this report any previously approved non-standard analytical methods used. Copies of the report shall be sent to both the Regional Administrator and the State Agency on the 10th of each month reporting the monitoring data from the previous month. A Discharge Monitoring Report form [EPA Form 3320-1 (10-72)] shall be used for reporting.

(g) Other Requirements

The permittee shall comply with all monitoring, recording, and reporting requirements of the State in which the discharge occurs.

The permittee shall transmit to the Regional Administrator a duplicate copy of any reports on radioactive liquid releases required to be submitted to the Atomic Energy Co[illegible]

The permittee shall transmit to the Regional [illegible] trator a duplicate copy of any reports on pesticides [illegible] be submitted to the U. S. Department of Agriculture.

Page 17

13. Sludge Disposal. Collected screenings, sludges, and other solids and precipitates separated from the permittee's discharges authorized by this permit and/or intake or supply water by the permittee shall be disposed of in such a manner as to prevent entry of such materials into navigable waters or their tributaries. Any live fish, shellfish, or other animals collected or trapped as a result of intake water screening or treatment may be returned to their water body habitat. The permittee shall report on all effluent screenings, sludges and other solids associated with the discharge herein described. The following data shall be reported together with the monitoring data required in Condition 17:

a. The sources of the materials to be disposed of;

b. The approximate volumes and weights;

c. The method by which they were removed and transported;

d. Their final disposal locations.

14. Air Emissions. Any air emissions containing waste gases and/or particulate matter from existing or future waste treatment facilities associated with the discharge herein described shall not exceed the permissible levels specified in Federal and State Air Quality Standards.

15. Storm Water. Any accumulated storm waters from the plant grounds which have come into contact with raw materials, chemicals, oils, contaminants, impurities, or other materials normally not present in storm water runoff shall not be discharged into navigable waters or their tributaries without prior treatment and required authorization.

16. Discharge Containing Parameter Not Previously Reported. The permittee shall not discharge any wastewater containing a substance or characterized by a parameter which was indicated as absent in its NPDES Permit Application. In the event of such a discharge, the permittee shall notify the Regional Administrator and the State Agency prior to the discharge.

17. Non-Compliance with Conditions. In the event the permittee is unable to comply with any of these conditions, due, among other reasons, to:

(1) Breakdown of waste treatment equipment, (biological and physical-chemical systems including, but not limited to, all pipes, transfer pumps, compressors, collection ponds or tanks for the segregation of treated or untreated wastes, ion exchange columns, or carbon absorption units);

(2) Accidents caused by human error or negligence;

(3) Other causes, such as acts of nature,

Page 18

the permittee shall notify the Regional Administrator and the State Agency immediately by telephone and in writing within five days. The written notification shall include the following pertinent information:

(1) Cause of noncompliance;

(2) A description of the noncomplying discharge including its impact upon the receiving waters;

(3) Anticipated time the condition of noncompliance is expected to continue, or if such condition has been corrected, the duration of the period of noncompliance;

(4) Steps taken by the permittee to reduce and eliminate the noncomplying discharge;, and

(5) Steps to be taken by the permittee to prevent recurrence of the condition of noncompliance.

Permittee shall take all reasonable steps to minimize any adverse impact to navigable waters resulting from noncompliance with any effluent limitation specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

Nothing in this permit shall be construed to relieve the permittee from appropriate civil or criminal penalties for noncompliance.

18. Alternate Power Supply. The permittee shall provide by [illegible], an alternate source of power to operate all waste treatment facilities or indicate, in writing to the Regional Administrator, that production shall be controlled or the discharge shall be handled in such a manner that, in the event the primary source of power to the waste treatment facilities fails, any discharge into the receiving waters will comply with the limits set herein. This alternate power supply, [illegible] generating unit located at the plant site or pu[illegible] independent producer of power, must be separate [illegible] power source used to operate the waste treatme[illegible] must be operational at the time construction [illegible] facilities has been completed. If a separate [illegible] at the plant site is to be used, the permittee shall certify in writing to the Regional Administrator and to the State Agency when the facility is completed and prepared to generate power.

19. Bypass Provision. There shall be no bypass of the waste treatment facilities which would allow the entry of untreated or partially treated wastes to the receiving waters.

20. Authorized Signature for Reporting Requirements. All reports required to be submitted by a corporation must be signed by a principal executive officer of at least the level of vice president, or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge described in the application form originates. In the case of a partnership or a sole proprietorship, all reports must be signed by a general partner or the proprietor respectively. In the case of a municipal, State, Federal or other public facility, the application must be signed by either a principal executive officer, ranking elected official or other duly authorized employee.

21. The United States Army Corps of Engineers conducts maintenance dredging of navigable waters and their tributaries pursuant to certain Federal statutes. The permittee should be aware of its possible responsibilities under the maintenance dredging program. Under these laws, any person, firm or other entity discharging suspended solids into a navigable waterway of the United States, or tributary thereof, which contribute to the necessity for maintenance dredging of that waterway may be required to participate in the maintenance dredging program.

Page 20

Definitions

Regional Administrator: Regional Administrator
Region II
Environmental Protection Agency
26 Federal Plaza
New York, New York 10007
ATTN: Permits Administration Branch

State Certifying Agency: Director
Division of Water Resources
New Jersey Department of
Environmental Protection
Labor & Industry Building
P. O. Box 1390
Trenton, New Jersey 08625

Daily - each operating day.

Weekly - every seventh day (the same day each week) and a normal operating day.

Monthly - one day each month (the same day each month) and a normal operating day. (i.e. the 2nd Tuesday of each month)

Daily Average - the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.

Daily Maximum - the total discharge by weight during any calendar day.

Net - the poundage contained in the discharge, less the poundage contained in the surface water body intake source over the same period of time.

1. The intake source must be the same water body that is being discharged to.

2. In cases where the surface water body intake source is pretreated for the removal of pollutants, the intake poundage to be used in calculating the net, is that poundage contained after the pretreatment [illegible]

Composite - a combination of individual (or continuously [illegible]) [illegible] at regular intervals over the entire discharge [illegible] each sample shall be proportional to the discharge flow [illegible] [illegible], a minimum of 24 individual grab [illegible] [illegible] and combined [illegible] discharges [illegible] of 30 minute inter[illegible] [illegible] grab [illegible] [illegible].

Page 21

Gross - the poundage contained in the discharge. (Gross applies when the intake source is a municipal or private water supply, ground water, or a surface water body other than the one being discharged to.)

Grab - An individual sample collected in less than 15 minutes.

Page 22

[illegible] Chemicals, Inc.

This permit shall become effective on the date indicated on the first page hereof as the effective date unless a request for an Adjudicatory Hearing is granted pursuant to the provisions of Section 125.34 of the NPDES regulations publis[illegible].

This permit and the authorization to disc[illegible] bind-ing upon the permittee and any successors in i[illegible] per-mittee and shall expire at midnight on June 2[illegible]. The permittee shall not discharge after the above [illegible] expiration. In order to receive authorization to discharge beyond the above date of expiration, the permittee shall submit such information, forms, and fees as are required by the agency authorized to issue NPDES permits no later than 180 days prior to the above date of expiration.

By authority of Gerald M. Hansler, P.E.
(Regional Administrator)

May 20, 1974
(Date)

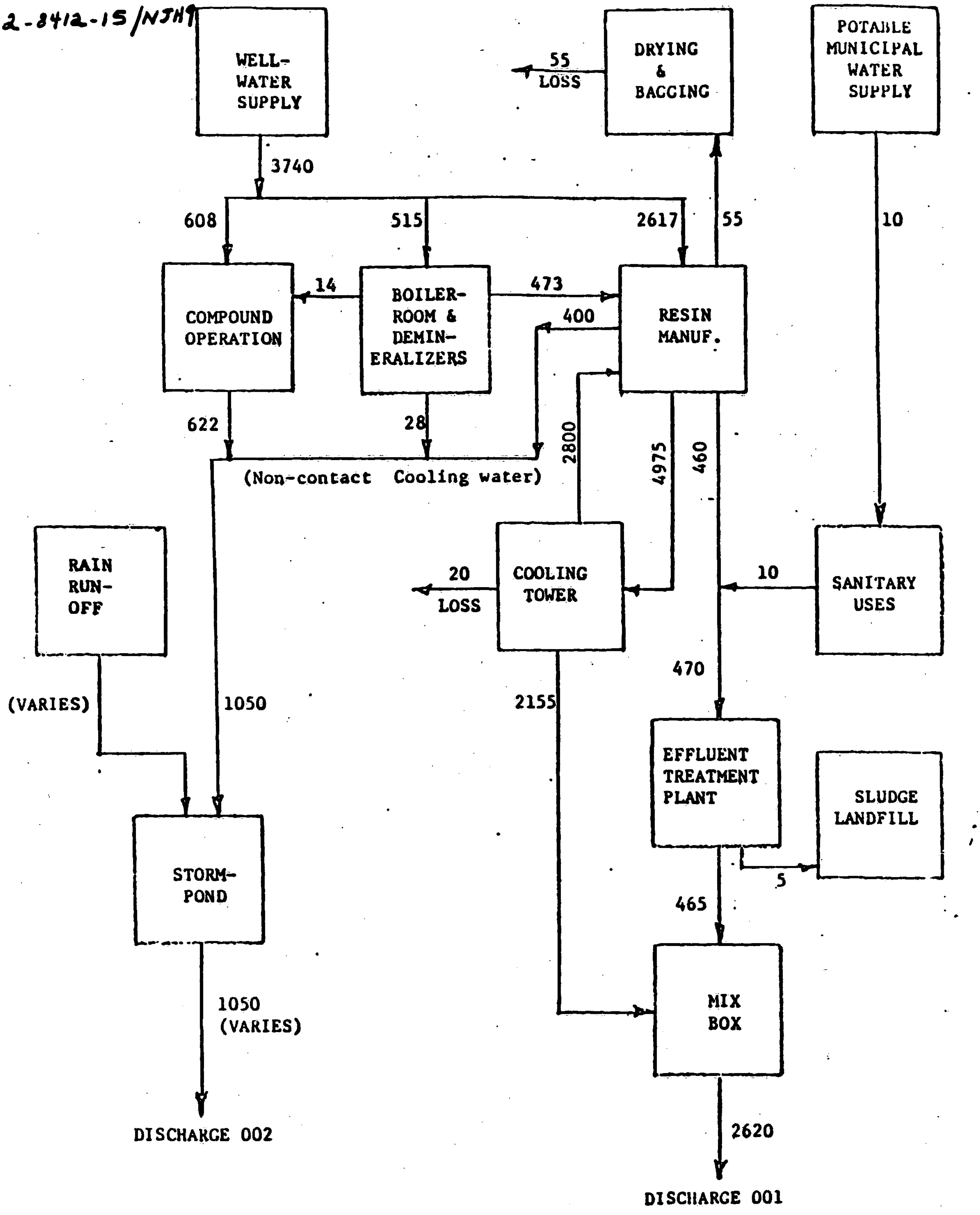
Richard A. Flye
(Signature)

Richard A. Flye
Chief
Water Enforcement Branch
Enforcement and Regional
Counsel Division

0010 - B

02-8412-15/NJH9

Page 23



0018-B
02-8412-15/NJH9

File

Joe Hoyle

Site Inspection at Tenneco Chemical

Page 34

June 22, 1981

Arrived at Tenneco Chemical at approximately 1530 hours. The atmospheric temperature ranged in the high 80's. The day was partly sunny with scattered clouds.

I spoke with Mr. Vince Sicalides on the effluent treatment facility and the sludge landfill. He stated that the facility had no problem of a serious nature. He showed the treatment plant and the landfill itself. The general appearance of the treatment plant showed one of adequate housekeeping. On the floor of the treatment plant were traces of a leaking liquid, later confirmed as water coming from a valve. Sicalides notified maintenance of this problem. The upper floor had the same appearance as did the lower level. Inspected the aerobic digestor, no discrepency noted. As the inspection continued, we ventured forth to the ponds surrounding the landfill. ~~There~~ ~~are two unlined lagoons~~ On one of the lagoons it was observed a green ty[illegible] substance which clung to the vegetion. The water showed a dark color[illegible] The flora surrounding this lagoon was sparse/ no fauna was noti[illegible] The lagoon is unlined, there is a possibility of polluted ground [illegible] second lagoon is also unlined the flora is sparse, there were sma[illegible] surrounding the area. ~~Concerning~~ the landfill itself the [illegible] several small animal tracks are scattered throughout. The lagoon [illegible] slight odor of unknown content. No observation was made of the [illegible] this point. Then proceded to inspect the rain storm pond which [illegible] 600 feet long 200 feet wide at one end and about 90 feet at [illegible] relative depth of 30 feet. Sicalides stated that the storm pond [illegible] frequently skimmed of solid materials. These materials are [illegible] an approved waste facility.

Note: Located at the effluent treatment plant were 12 pall[illegible] Phosphoric 75

Lot 00122
Lot 10504

The condition of the drum were in fair to good condition, rav[illegible] necessary.

Attachment C

02-8412-15/NJH9

BUREAU OF HAZARDOUS WASTE
FACILITY INSPECTION FORM

Page 25

Facility Name: Tenneco Chemicals   I.D. # 0306D   Date: Mon. 12/22/80   Time: 8:00

Facility Type: Sanitary Landfill

Street: Beverly Road   Lot: 12A   Block: 95

Town: Burlington Twp.   Phone: 609-396-9200

County: Burlington   Person Contacted: Fred Kanzler
Position: Environmental Coordinator

Inspector: Al Fralinger

Weather Conditions: Clear /X/ Rain / / Snow / /

Wind Direction: Temp: 15   Speed 0 MPH

Security Measures: Fence /X/ Yes / / No

Guard /X/ Yes / / No

Other ______

Safety Features:

Firefighting /X/ Yes / / No

Type:

Extinguisher /X/ Guns / / Other / /

Protective Clothing: /X/ Yes / / No
(Issued to Employees)

Written Emergency Procedures Posted /X/ Yes / / No

Inspection Observations:

Odors: On Site / / Yes /X/ No   Off Site / / Yes /X/ No

Source: ______

Leaks, Spills: On Site / / Yes /X/ No   Off Site / / Yes /X/ No

Source: ______

Overall Housekeeping: Poor / / Fair / / Good /X/ Excellent / /

Drum Storage:

Total No. 33   Size 80 gal.   Type steel over packs

Stacked Height: /X/ 1 Drum / / 2 Drums / / 3 Drums / / 4 or more

Palletized: /X/ Yes / / No

B

Categorized: /X/ Yes /_/ No   Labeled: /X/ Yes /_/ No

Manifested: /X/ Yes /_/ No

Condition:

Leaking: /_/ Yes /X/ No   Number of Leakers ____________

General Condition: /_/ Poor /_/ Fair /X/ Good /_/ Excellent

Vehicles: Registered /_/ Yes /_/ No

Numbers Displayed /_/ Yes /_/ No   N/A

Manifest Check:

Properly completed /_/ Yes /_/ No   N/A

Explain:

Monitoring System: Air /X/ Yes /_/ No

Water /X/ Yes /_/ No

Does T.O.A. reflect capability: (Treatment/Processes) /X/ Yes /_/ No

Explain:

Samples Gathered: /_/ yes /X/ no   Number ____________

Photos: /_/ Yes /X/ No   No.____________   Location: ____________

1. ____________

2. ____________

3. ____________

4. ____________

5. ____________

Observations and/or Other Comments

1. The large area of PVC sludge drag out material at the secondary staging area has been moved to the landfill. The material is being landfilled in the extreme north end of the landfill. The drag out material appeared to be blended and mixed well with cover material. There were several areas of drag out material that were exposed. Mr. Kanzler will have the contractor cover these areas. At my inspection there was no activity in the landfill. There had been soil excavated from the east end of the landfill and stockpiled for cover material. There still is some drag out material present at the secondary staging area. Also some small spillages in the area need to be scraped up. Mr. Kanzler will have the contractor reminded of this before he leaves the site.
2. Several piles of drag out material have accumulated at the primary staging area. This material will be transferred to the secondary staging area.
3. The 33 waste drums have been labeled for shipment and are supposed to be picked up and

Inspector's Signature   Facility Operator's Signature ions and/or Other Com ts

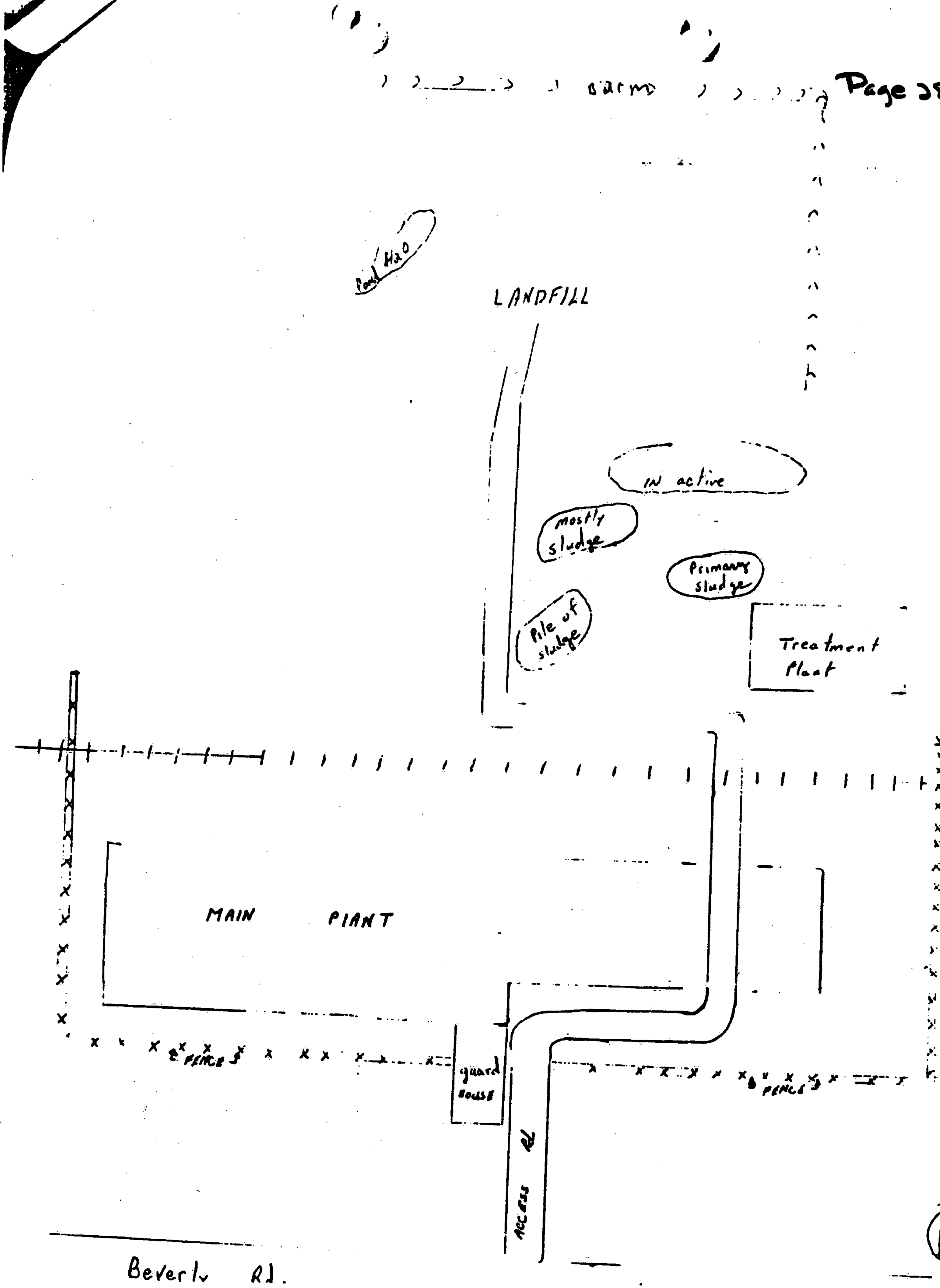
Page 27

to Alabama by Waste Management today. Tenneco will be using their own manifest and
so manifests from NJ and Alabama.

4. Mr. Alvin Dickerson accompanied Mr. Kanzler and myself through the inspection. He will replace Mr. Kanzer, as a Tenneco representative, when he is not present.

Inspector's Signature

Facility Operator's Signature



barns
Pond H2O
LANDFILL
IN active
mostly sludge
Primary sludge
Pile of sludge
Treatment Plant
MAIN PIANT
FENCE
guard House
ACCESS Rd
Beverly Rd.

(B)

0615-8
02-8412-15 NJH9

Page 29

BUREAU OF HAZARDOUS WASTE
FACILITY INSPECTION FORM

Facility Name: Tenneco Chemicals | I.D.# 0306D | Wed. Date: 12/31/80 Time: 9:00

Facility Type: Sanitary landfill

Street: Beverly Road | Lot: 12A | Block: 95

Town: Burlington Twp. | Phone: 609-396-9200

County: Burlington | Person Contacted: Alvin Dickerson
Position: Envioramental Coordinator

Inspector: Al Fralinger

Weather Conditions: Clear [X] Rain [ ] Snow [ ]

Wind Direction: N-NE Temp: 15° Speed 5-10 MPH

Security Measures: Fence [X] Yes [ ] No

Guard [X] Yes [ ] No

Other ____________

Safety Features:

Firefighting [X] Yes [ ] No

Type:

Extinguisher [X] Guns [ ] Other [ ]

Protective Clothing: [X] Yes [ ] No
(Issued to Employees)

Written Emergency Procedures Posted [X] Yes [ ] No

Inspection Observations:

Odors: On Site [ ] Yes [X] No Off Site [ ] Yes [X] No

Source: ____________

Leaks, Spills: On Site [ ] Yes [X] No Off Site [ ] Yes [X] No

Source: ____________

Overall Housekeeping: Poor [ ] Fair [X] Good [ ] Excellent [ ]

Drum Storage:

Total No. ______ Size ______ Type ______

Stacked Height: [ ] 1 Drum [ ] 2 Drums [ ] 3 Drums [ ] 4 or more

Palletized: [ ] Yes [ ] No

N/A

B

Categorized: /_/ Yes /_/ No   Labeled: /_/ Yes /_/ No

Manifested: /_/ Yes /_/ No

Page 30

Condition:

Leaking: /_/ Yes /_/ No   Number of Leakers ________   N/A

General Condition: /_/ Poor /_/ Fair /_/ Good /_/ Excellent

Vehicles: Registered /_/ Yes /_/ No

Numbers Displayed /_/ Yes /_/ No

Manifest Check:

Properly completed /_/ Yes /X/ No

Explain: see item #1

Monitoring System: Air /X/ Yes /_/ No

Water /X/ Yes /_/ No

Does T.O.A. reflect capability: (Treatment/Processes) /X/ Yes /_/ No

Explain:

Samples Gathered: /_/ yes /X/ no   Number ________

Photos: /_/ Yes /X/ No   No. ________   Location: ________

1. ________
2. ________
3. ________
4. ________
5. ________

Observations and/or Other Comments

1. Tenneco's 33 waste drums were shipped out last Monday 12/22/80 by Applied Technology of Toms River. The drums went to Alabama - Waste Management. A manifest was used, however, Mr. Dickerson was unaware of where the copy was located. Fred Kanzler is presently on vacation and the manifest will be shown to me when he returns.
2. There presently is no waste drums located at Tenneco Chemicals.

Inspector's Signature

[signature]

Facility Operator's Signature ________

(B)

vations and/or Other Com[illegible]s

Page 31

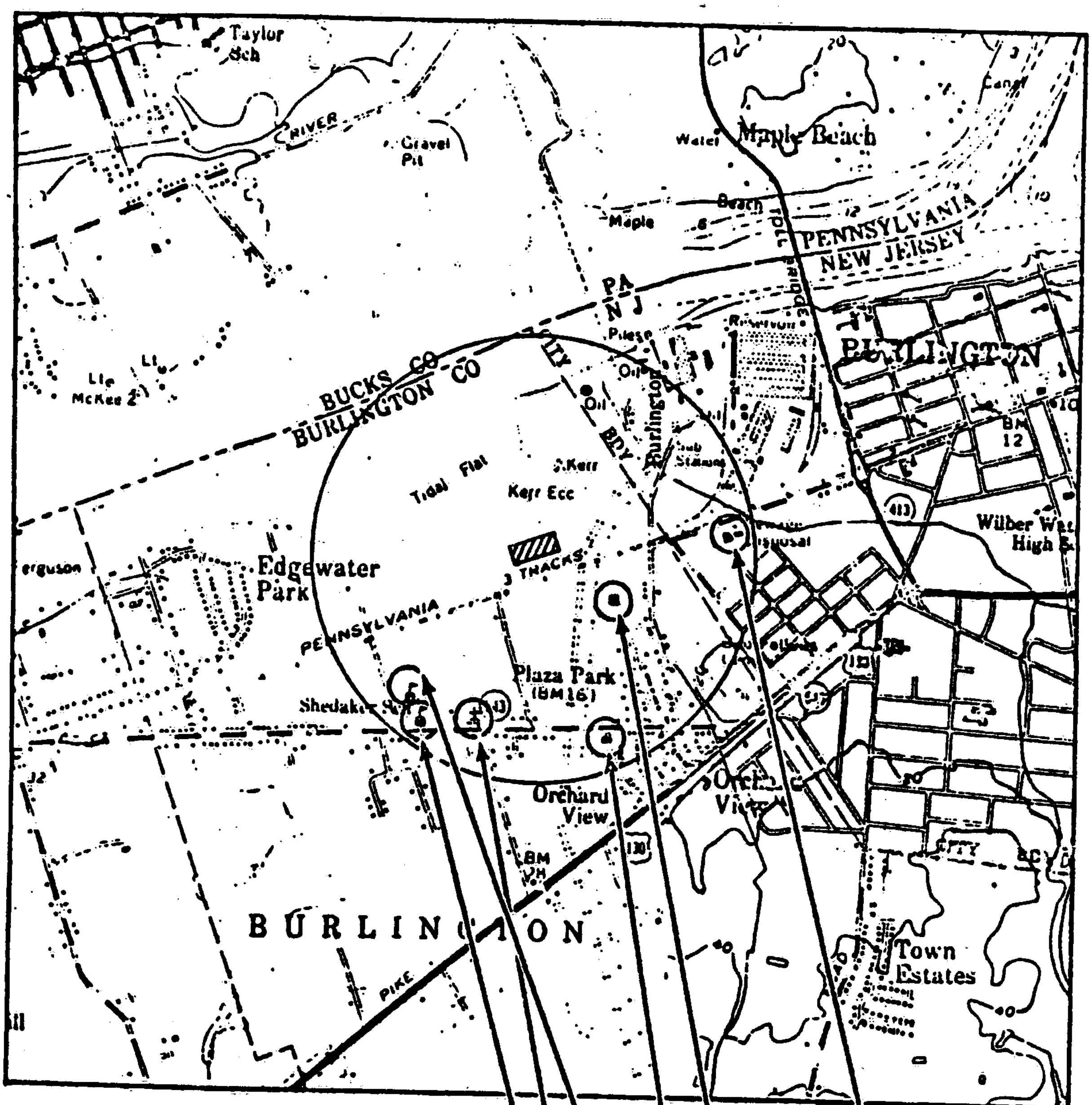
. At the landfill the contractor was landfilling sludge from the center and west lagoons The dikes were broken last week and the lagoons drained. The contractor is bringing stockpiled soil and mixing it with the sludge in the lagoons and then dumps the mixed material into the landfill. The surface of the landfill is frozen and difficult to cover the sludge material without additional soil that has been stockpiled.

4. There was no PVC sludge - drag out material present at the secondary staging area. There were several piles of drag out material located in the primary staging area.

5. Tenneco is presently in a shutdown for maintenance. They will start up operations thi Saturday, January 3, 1981.

Inspector's Signature

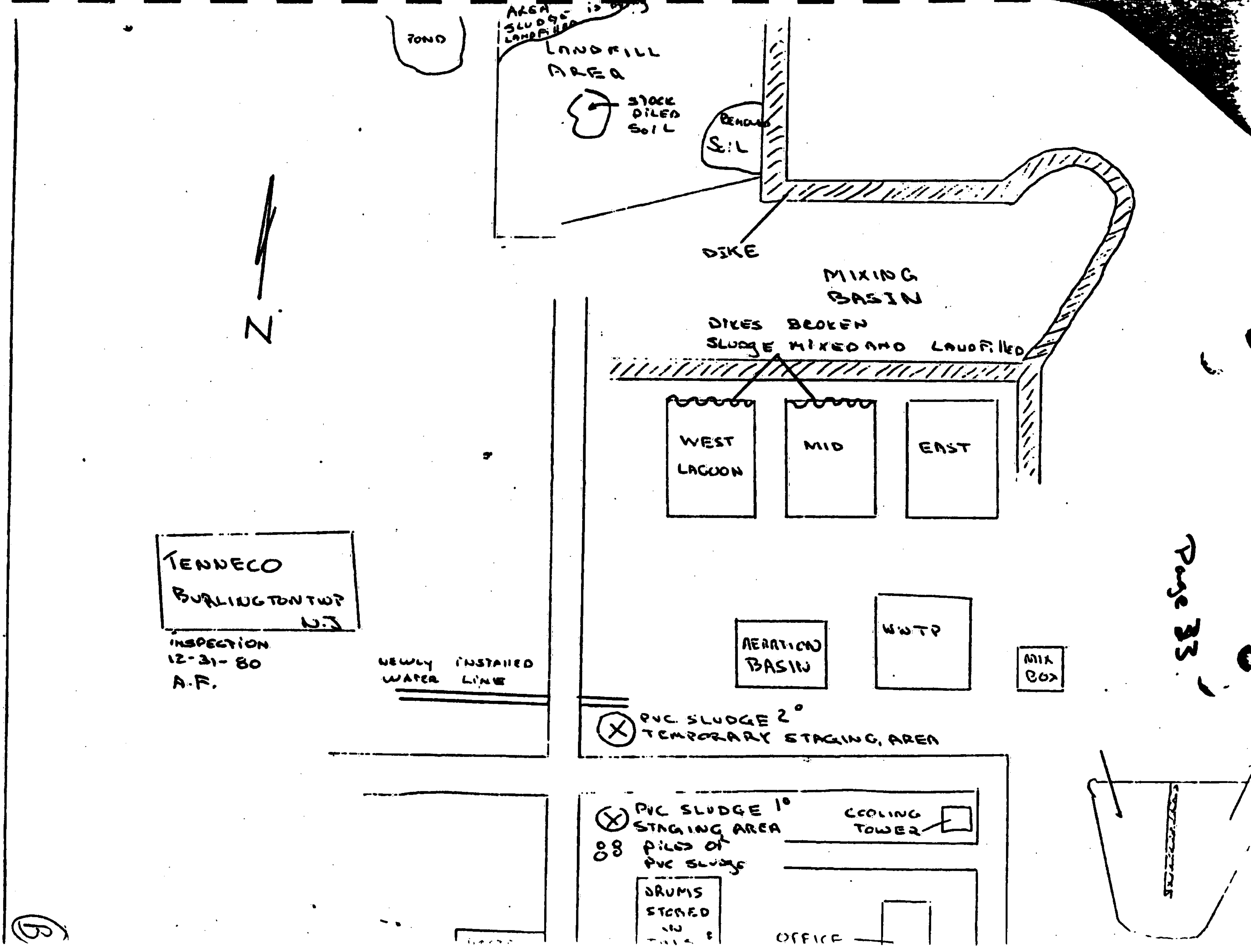
Facility Operator's Signatu

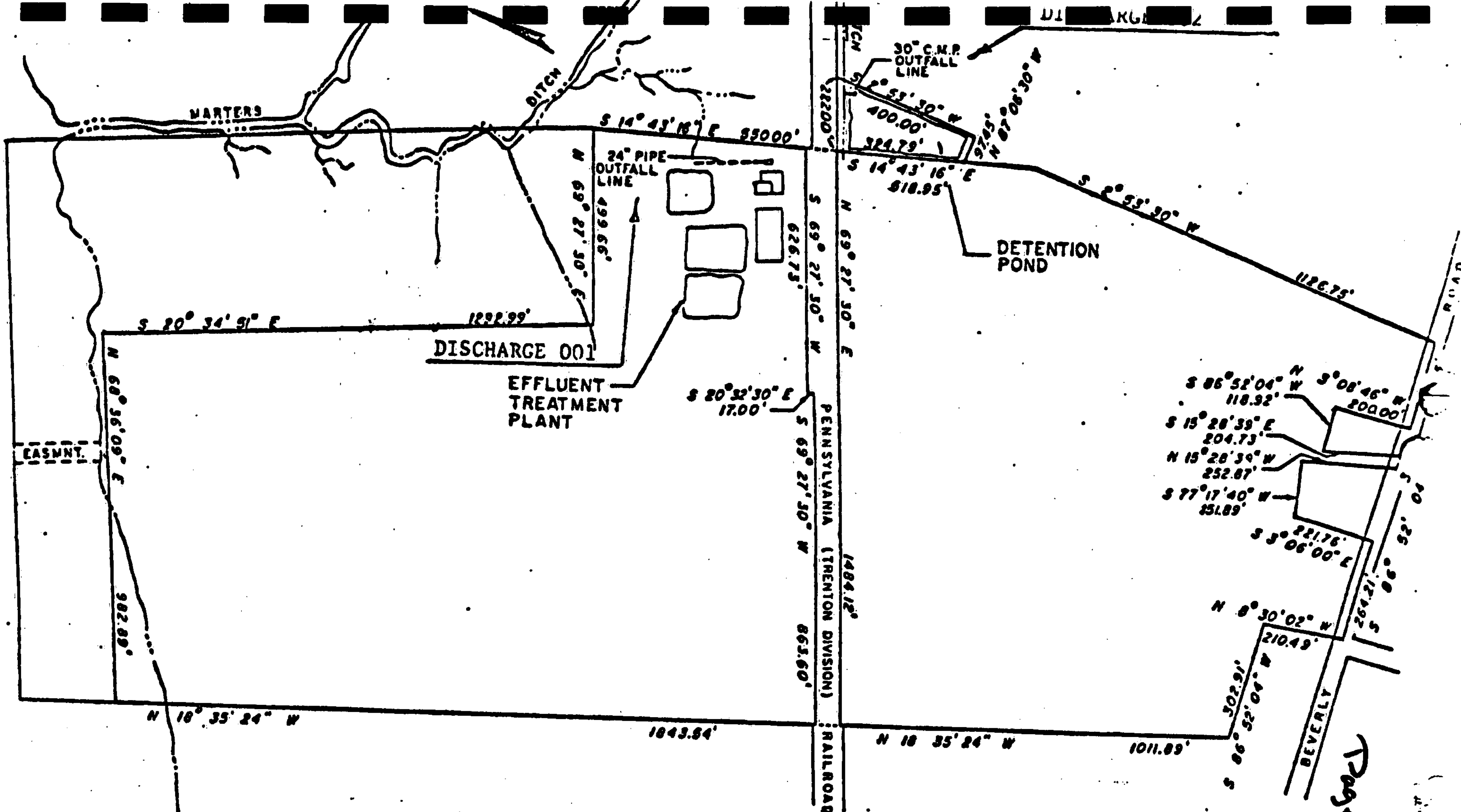


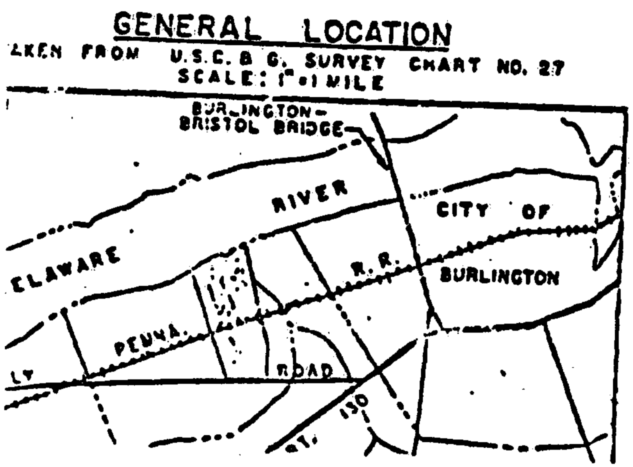
Public Buildings:
1. Beverly Road Church of God of Prophecy
2. Shedaker School
3. Beverly Road School (Children Special Education)
4. Beverly Road Fire Company No. 2 Burlington Township
5. Burlington Township Public Works Sewage Disposal Plant
6. City of Burlington Water Pollution Control Treatment Plant (Sewage Disposal)

FIGURE 12

ROY F. WESTON, INC.
WESTON


AREA SLUDGE LANDFILLED is being
POND
LANDFILL AREA
STOCK PILED SOIL
REMOVED SOIL
DIKE
MIXING BASIN
DIKES BROKEN
SLUDGE MIXED AND LANDFILLED
WEST LAGOON
MID
EAST
N
TENNECO
BURLINGTON TWP N.J.
INSPECTION
12-31-80
A.F.
NEWLY INSTALLED WATER LINE
AERATION BASIN
WWTP
MIX BOX
PVC SLUDGE 2°
TEMPORARY STAGING AREA
PVC SLUDGE 1°
STAGING AREA
PILES OF PVC SLUDGE
COOLING TOWER
DRUMS STORED IN
OFFICE
B





Location Plan -- TENNECO CHEMICALS, INC.

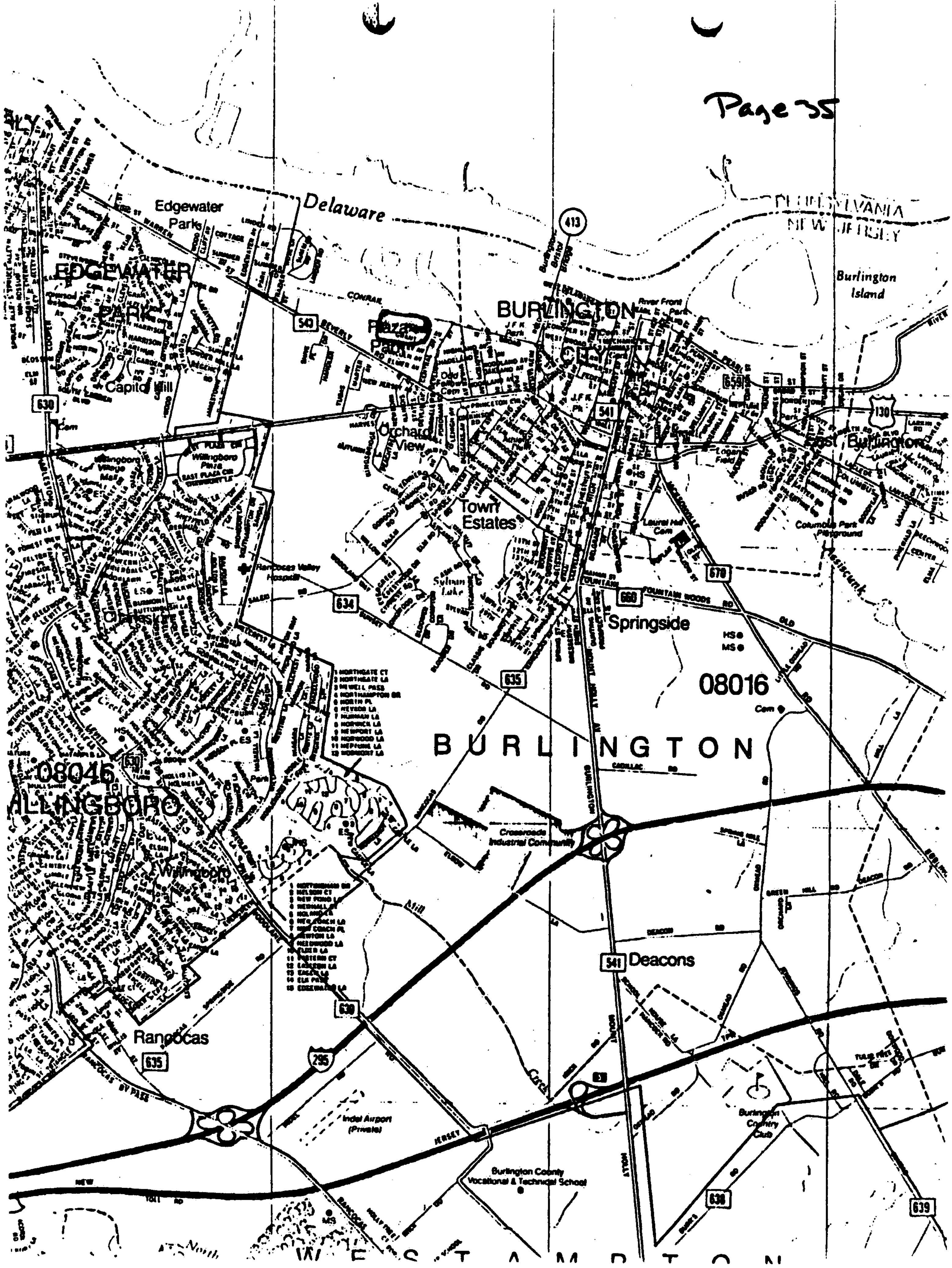
REVISED	DESCRIPTION

WILLS, ANDERSON & LORD
CONSULTING ENGINEERS
MT. HOLLY-LUMBERTON RD., MT. HOLLY, N.J.
(609) 267-1210

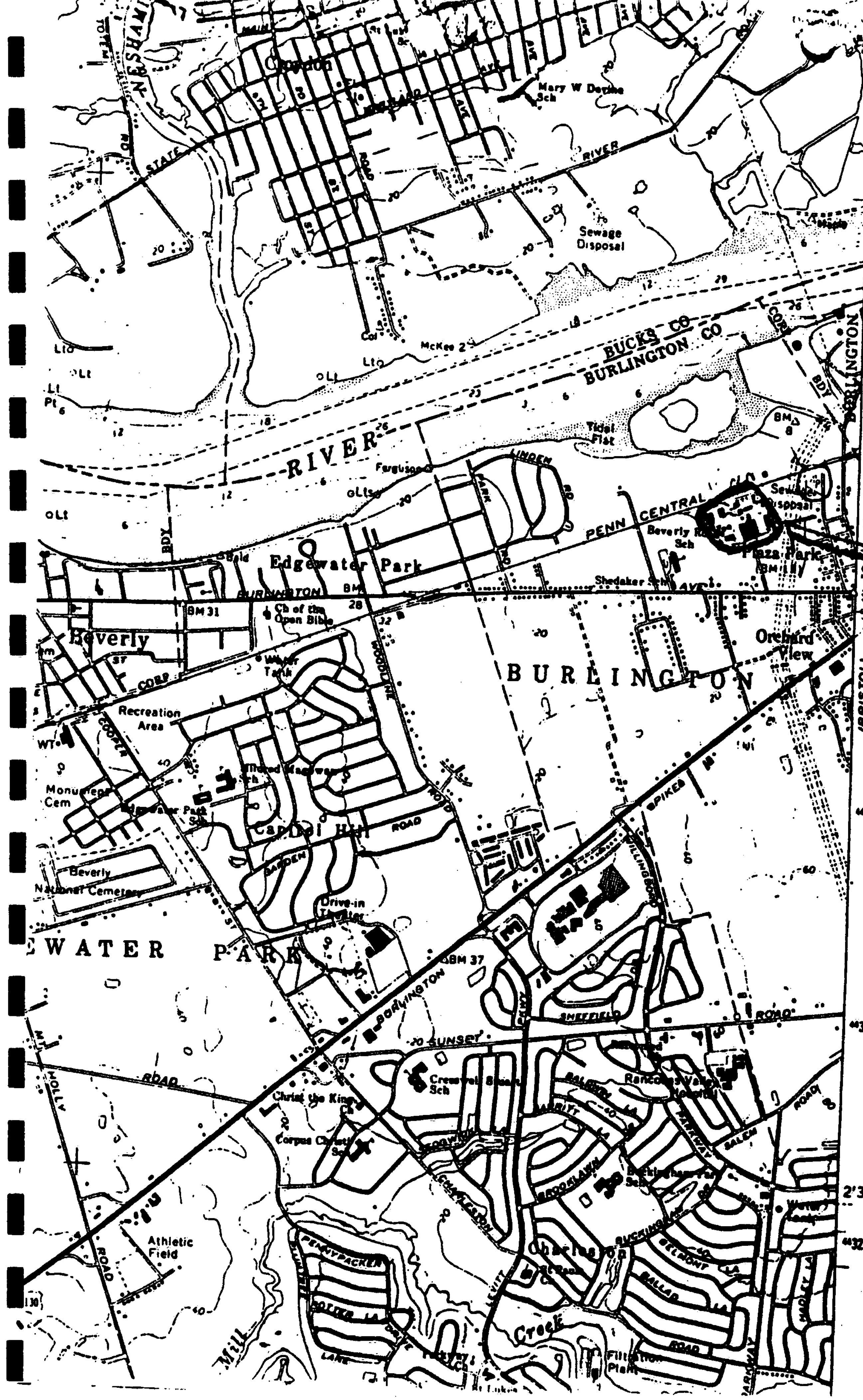
Plan Showing Outfall Pipe:
TENNECO - CHEMICALS
BURLINGTON TOWNSHIP
BURLINGTON COUNTY N.J.

Gordon L. Binkel

Page 35



Delaware
PENNSYLVANIA
NEW JERSEY
Burlington Island
Edgewater Park
EDGEWATER PARK
Capitol Hill
BURLINGTON CITY
Plaza Park
Orchard View
Town Estates
Sylvan Lake
East Burlington
Columbus Park Playground
Rancocas Valley Hospital
Springside
08016
BURLINGTON
08046
WILLINGBORO
Willingboro
Willingboro Plaza
Crossroads Industrial Community
Deacons
Rancocas
Burlington Country Club
Burlington County Vocational & Technical School
Indel Airport (Private)
413
543
541
130
630
634
635
660
659
670
638
639
295



Page 36

Tenneco Che

Beverly Roa

Burlington To

Burlington C

Beverly Quad.

Latitude

Longitude

Approximat

Site

Location

Ron - Is this the Tenneco L.F. what we are expecting?
[illegible] 03-08
I.D. 0306D

82-8412-15

Page 37

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
SOLID WASTE ADMINISTRATION
32 EAST HANOVER STREET, TRENTON, N. J. 08625

JACK STANTON
DIRECTOR

LINO F. PEREIRA
ADMINISTRATOR
SOLID WASTE MANAGEMENT

February 2, 1982

"CERTIFIED MAIL - RETURN RECEIPT REQUESTED"

Mr. John P. Sandstedt
Tenneco Chemicals
Turner Place
P. O. Box 365
Piscataway, N. J. 08854

Re: Tenneco Chemicals Sanitary Landfill, Burlington Township, Burlington County, File No. 75-1

Dear Mr. Sandstedt:

On January 25, 1982, a meeting was held between the representatives of Tenneco Chemicals and the representatives of the Solid Waste Administration. The purpose of the meeting was to review the results of analyses performed on seven (7) samples from the referenced facility and to make a final determination on whether the waste is hazardous or non-hazardous.

The Bureau of Hazardous Waste has reviewed the sludge/sample analyses against the hazardous waste classification criteria of the recently adopted hazardous waste subchapters of N.J.A.C. 7:26-1 *et seq.* and has concluded that all of the wastes in question are non-hazardous. The Bureau has concluded that the proper classification of the waste water treatment plant sludge is waste I.D. 12 - Dry Sewage Sludge and the proper classification of the scrap PVC material is waste I.D. 27 - Industrial Waste.

The Bureau also has reviewed the analyses of the storm pond sludge and has concluded that it is also non-hazardous waste, and is properly classified as waste I.D. 27 - Industrial Waste.

C

Page 38

If there are any questions, please feel free to contact this office at (609) 292-9877.

Very truly yours,

Michael F. DeBonis

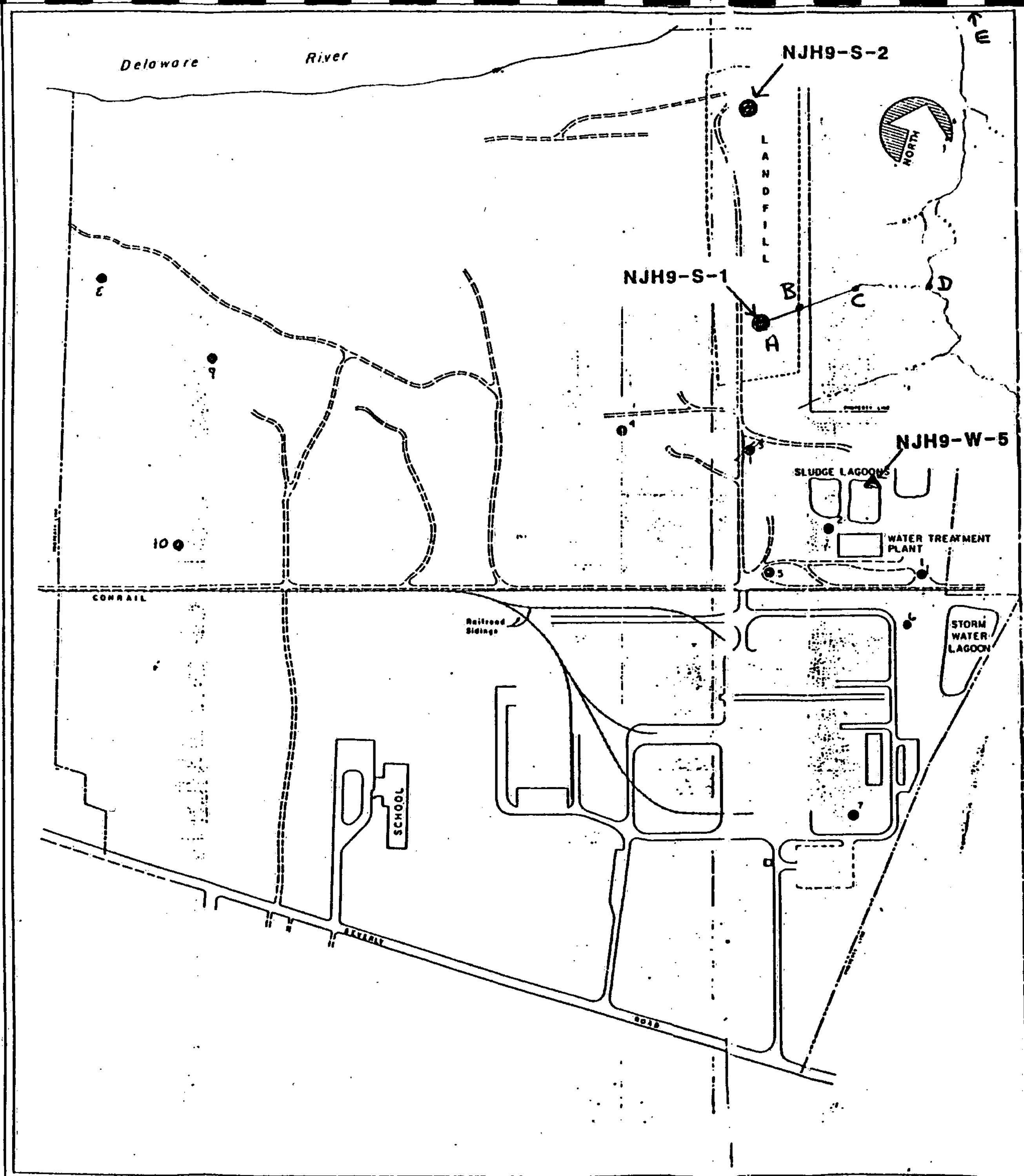
Michael F. DeBonis
Acting Chief
Bureau of Hazardous Waste

MFD:BP:eom

cc: Walter Burshtin
Engineering File

C

3412-15/NJH9



Distance AB used to calculate average slope of facility

Distance BCDE used to calculate average terrain slope

EXPLANATION

● PRODUCTION WELL LOCATION AND NUMBER

0 500

feet

SUBJECT

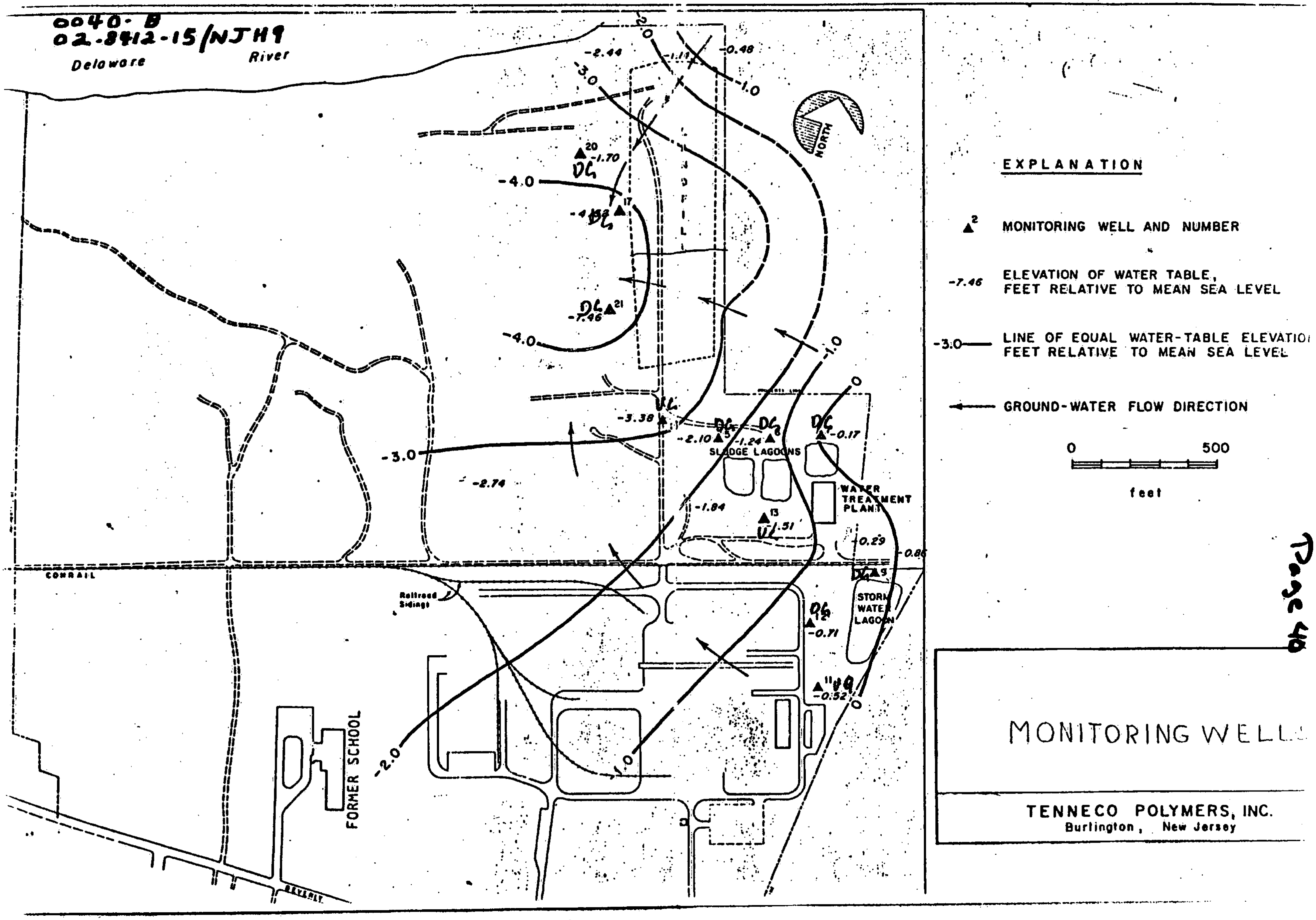
LOCATIONS OF EXISTING WELLS

PREPARED FOR

TENNECO POLYMERS, INC.
Burlington, New Jersey

Geraghty & Miller, Inc.	COMPILED BY N. Valkenburg	SCALE SHOWN	FIGURE 5
	PREPARED BY R. Padula	DATE APR 1982	
	PROJECT MGR Nicholas Valkenburg		

Page 39



0040-B
02-8412-15/NJH9
Delaware River
EXPLANATION
MONITORING WELL AND NUMBER
ELEVATION OF WATER TABLE, FEET RELATIVE TO MEAN SEA LEVEL
-7.46
LINE OF EQUAL WATER-TABLE ELEVATION FEET RELATIVE TO MEAN SEA LEVEL
-3.0
GROUND-WATER FLOW DIRECTION
0
500
feet
NORTH
SLUDGE LAGOONS
WATER TREATMENT PLANT
STORM WATER LAGOON
CONRAIL
Railroad Sidings
FORMER SCHOOL
-2.44
-1.11
-0.48
-1.70
-4.0
-3.0
-2.0
-1.0
0
-7.46
-3.38
-2.10
-1.24
-0.17
-2.74
-1.84
-1.51
-0.29
-0.86
-0.71
-0.52
MONITORING WELLS
TENNECO POLYMERS, INC.
Burlington, New Jersey
Page 40

02-8412-15/N JH9

Page 41

I. WASTE SUMMARY

A. Description of Wastes generated at the Burlington Site

There are three types of major waste products generated at the Burlington site:

1. waste PVC

2. Effluent Plant sludge

3. industrial waste

All of the above wastes are categorized as non-hazardous and their composition will be discussed further below.

In addition, there is a potential to generate wastes which may be caused to be accumulated by:

4. laboratory testing

5. off-grade raw materials and waste oil

6. spill clean-up

Some wastes generated in 4., 5. and 6. will have to be categorized as hazardous waste since they meet the definition of the four hazardous waste characteristics or are carried on the waste lists in 40 CFR, § 261.

The following is a description of the six wastes listed above:

1. Waste PVC

This waste is primarily reactor clean-out material and is, for the most part, accumulated in three drag-out pit areas. There, water is separated from solids and the resulting solids are landfilled. Small amounts of non-recoverable resin and the dirt/resin mix accumulated in the drainage ditches is also landfilled.

None of this material is hazardous by definition or listing in 40 CFR, § 261.

2. Effluent Plant Sludge

This is the sludge generated as the result of primary and secondary treatment of our process waste water. The sludge is allowed to accumulate in three sludge lagoons and is periodically landfilled.

The material is non-hazardous by definition or listing in 40 CFR, § 261.

3. Industrial Waste

Under this category fall all the waste material generated at the Resin and Compound Plants which are covered under the ID 27 Permit from the NJDEP-SWA. Included are dry blend, pig and belt waste

Attachment A

from the co...ound operation. Pallets, empty raw material containers except metal drums. Maintenance waste (e.g., small scrap), clean-up material other than oil or spill clean-up. A detailed listing of all materials may be found in the ID 27 letters submitted to the NJDEP-SWA.

All wastes in this category are non-hazardous.

4. <u>Laboratory Testing</u>

a. <u>Waste Solvents</u>

This waste is generated as a result of testing and analyses of raw materials and finished product. The hazard categories and the solvents are listed under I.B. below.

The plasticizer waste generated in the Compound Plant Laboratory is collected and recycled.

b. <u>Paste Waste</u>

The paste waste, which is prepared and stored in pint metal cans, is generated due to the rheology testing required for plastisol and blending resins. The paste is a hazardous material (see I.B. below).

c. <u>Resin and Solid Raw Materials</u>

For effective quality control, the finished resin or in-process samples must be tested and analyzed periodically. The unused resins are eventually collected in gaylords and sold. The unused in-process samples (e.g., slurries) are returned to the drag-out pits.

All unused portions of solid raw materials tested are collected and eventually returned to the production area for use.

The resin is non-hazardous. Contaminated solid raw materials fall under the hazardous waste category if they have properties as defined or are listed in 40 CFR § 261.

5. <u>Off-Grade Raw Materials and Waste Oil</u>

Any liquid or solid raw material which becomes contaminated or is otherwise rendered useless in the production process automatically is classified as a waste product.

Depending upon its properties, these materials may be classified as either hazardous or non-hazardous. Only after careful consideration of all information available and based on test results, may these materials be categorized. Those raw materials which have been found to exhibit properties as defined and/or are listed in 40 CFR § 261 are shown in I.B. below.

All waste oil generated in the Resin or Compound Plant is collected in storage tanks and periodically removed for the purpose of regeneration.

6. <u>Spill Clean-Up</u>

This type of waste is only generated when a spill has occurred either during unloading, transfer or any other discharge of raw materials onto the ground or into the water. The contaminated soil,

A

Page 43

adsorbent ma[illegible]al or any other equipment use[illegible] r the recovery of a spilled substance must be collected and becomes clean-up waste. All plasticizer unloading spills are collected in drums and are recycled. Depending upon the type of material involved, the waste may be non-hazardous or hazardous.

B. EPA Hazardous Wastes at the Burlington Site

The tabulation below lists raw materials used at the Burlington Site which will be, when contaminated, discarded, spilled or otherwise rendered useless for their proper use in the production, utility or quality control areas, by definition or listing in § 261, hazardous wastes.

Materials	Characteristic	EPA Waste Number	Listed in Section	Used By*
aqua ammonia	I	D001	261.21(a)(1)	P,U
ammonium persulfate	R	D003	261.23(a)(6)	P
lauroyl peroxide	R	D003	261.23(a)(6)	P
sodium hydroxide	C	D002	261.22(a)(1)	P,U
Colloids 581B	I	D001	261.21(a)(1)	P
VAcM	I	D001	261.21(a)(1)	P
VCM	T	U043	261.33(f)	P
DOP	T	U107	261.33(f)	P,U
phenol	T	U188	261.33(f)	P
barium stabilizers	EPT	D005	261.24	P
cadmium stabilizers	EPT	D006	261.24	P
lead stabilizers	EPT	D008	261.24	P
TCE	T	U228	261.33(f)	P
Thiostop N	R	D003	261.23(a)(5)	P
acetone	I	D001	261.21(a)(1)	Q
methanol	I	D001	261.21(a)(1)	Q
THF	I	D001	261.21(a)(1)	Q
cyclohexanone	I	D001	261.21(a)(1)	Q
phosphoric acid	C	D002	261.22(a)(1)	U
hydrochloric acid	C	D002	261.22(a)(1)	U
sulfuric acid	C	D002	261.22(a)(1)	U
KI_2 - Betz	C	D002	261.22(a)(1)	U
Slimicide C-30	I	D001	261.21(a)(1)	U
laboratory solvent	I	D001	261.21(2)(1)	Q
paste waste	T	U107	261.33(f)	Q

* P = Production (Resin or Compound)

U = Utilities (Boiler House, Effluent Plant)

Q = Quality Control (Resin or Compound)

A

All other raw materials not listed at this time will be shown once identified to be hazardous waste by definition or listing.

Items, such as Kiesller dust collector bags, used in the Compound Plant will be classified - analyzed if necessary - when items of this nature are generated.

A

02-8412-15/NJH9

Tenneco Chemicals Incorporated
Beverly Road/Burlington Township
Burlington County/New Jersey

This facility manufactures polyvinyl chloride for various industrial applications. PVC reactor scrape out wastes and liquids from the facility's waste water treatment plant are placed into unlined lagoons for evaporation and the dry sludge is placed into the facility's on site landfill.

Since the treatment plant effluent is considered non-hazardous and the vinyl chloride has dubious hazard characteristics, this site is given a low priority rating and an inspection is recommended on a time available basis.

Submitted by: Neil Jiorle
Environmental Specialist
NJDEP-HSMA
RCRA 3012 Project

Page 46

Preliminary Assessment

Tenneco Chemicals Incorporated
Beverly Road
Burlington Township/Burlington County
New Jersey

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION — 01 STATE | 02 SITE NUMBER

II. SITE NAME AND LOCATION

01 SITE NAME: Tenneco Chemicals, Inc.	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER: P. O. Box 116, Beverly Road
03 CITY: Burlington Township	04 STATE: NJ; 05 ZIP CODE: 08016; 06 COUNTY: Burlington; 07 COUNTY CODE; 08 CONG DIST
09 COORDINATES LATITUDE: 40° 04' 11" LONGITUDE: 74° 52' 52"	Block 95 Lot 12A

10 DIRECTIONS TO SITE: From Trenton-Route 206 South to Route 130 South to Burlington Twp. Make right onto Beverly Road (County Rt. 543). Tenneco entrance is approximately 1/4 mile on right.

III. RESPONSIBLE PARTIES

01 OWNER: Tenneco Chemicals, Inc.	02 STREET: P. O. Box 116, Beverly Road
03 CITY: Burlington Township	04 STATE: NJ; 05 ZIP CODE: 08016; 06 TELEPHONE NUMBER: (609) 396-9200
07 OPERATOR: SAA-Fred Kanzler, Env.Coordinator	08 STREET:
09 CITY:	10 STATE; 11 ZIP CODE; 12 TELEPHONE NUMBER: ( )

13 TYPE OF OWNERSHIP (Check one): ☒ A. PRIVATE ☐ B. FEDERAL: ______ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER: ______ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply): ☒ A. RCRA 3001 DATE RECEIVED: 2 1 83 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION: ☒ YES ☐ NO DATE 2 1 83 (MONTH DAY YEAR)
BY (Check all that apply): ☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR ☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: ______ (Specify)
CONTRACTOR NAME(S): ______

02 SITE STATUS (Check one): ☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION: ______ BEGINNING YEAR | ENDING YEAR ☒ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED: Phenols,chlorine,phosphorus,ammonia,vinylchloride,carbon disulfide, vinyl acetate,cyclohexane,ammonium persulfate,lauroyl peroxide,sodium hydroxide,acetone,methanol,cyclohexanone,acids

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION: Waste materials are placed into an onsite landfill.Hazardous materials may have been placed into this landfill.This represents a potential source of contamination to area groundwater,surface water and soils.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT: Albert Fralinger	02 OF (Agency/Organization): NJDEP-BFO-Red Lion Office		03 TELEPHONE NUMBER: (609) 859-2958
04 PERSON RESPONSIBLE FOR ASSESSMENT: Neil Jiorle	05 AGENCY: NJDEP	06 ORGANIZATION: DWM-HSMA	07 TELEPHONE NUMBER: (609) 292-1213 — 08 DATE: 10 5 84 (MONTH DAY YEAR)

Page 48

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A. SOLID
- [X] B. POWDER, FINES
- [X] C. SLUDGE
- [ ] D. OTHER ________ (Specify)
- [ ] E. SLURRY
- [ ] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS ________

CUBIC YARDS ________

NO. OF DRUMS ________

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [X] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [ ] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	Phenols	108-95-2	These are raw		
IOC	Chlorine	7782-50-5	materials used		
IOC	Phosphorous	7723-14-0	in the Tenneco		
IOC	Ammonia	7664-41-7	facility for various		
OCC	VinylChloride	75-01-4	purposes such as		
IOC	Carbon Disulfide	75-15-0	production,quality		
OCC	Vinyl Acetate	108-05-4	control and utilities		
SOL	Cyclohexane	110-82-7	(boiler house,effluent		
IOC	Ammonium Persulfate	7727-54-0	plant).		
OCC	Lauroyl Peroxide	105-74-8			
BAS	Sodium Hydroxide	1310-73-2			
SOL	Acetone	67-64-1			
SOL	Methanol	67-56-1			
OCC	Cyclohexanone	108-94-1			
ACD	Phosphoric acid	7664-38-2			
ACD	Hydrochloric acid	7647-01-0			

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Attachment A-Waste summary and description of substances at Tenneco facility
Attachment B-NJDEP Inspection reports from A. Fralinger and M. Nalbone
AttachmentD-Laboratory reports and analyses on samples taken at Tenneco facility

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [x] A. SOLID
- [x] B. POWDER, FINES
- [x] C. SLUDGE
- [ ] D. OTHER ____ (Specify)
- [ ] E. SLURRY
- [ ] F. LIQUID
- [ ] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS ____

CUBIC YARDS ____

NO. OF DRUMS ____

03 WASTE CHARACTERISTICS (Check all that apply)

- [x] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [x] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [ ] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
ACD	Sulfuric acid	7664-93-9	Raw material		
SLU	Isopropyl alcohol	67-63-0	Sludge Dragout	550	ppb
SLU	1,1,2,2Tetrachloroethylene	127-18-4	Sludge Dragout	286	ppb
SLU	Trichloroethylene	79-01-6	Leachate	106	ppb
MES	Barium	7440-39-3	Soil sample	65	ppb
MES	Chromium, total	7440-47-3	Soil sample	25	ppb
MES	Lead	7439-92-1	Soil sample	16	ppb

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Attachment A-Waste summary and description of substances at Tenneco facility
Attachment B-NJDEP Inspection reports from A. Fralinger and M. Nalbone
Attachment D-Laboratory reports and analyses on samples taken at Tenneco facility

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE | 02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [ ] OBSERVED (DATE: ______) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

Vinyl chloride monomer placed in unlined lagoons and landfill could percolate into and contaminate groundwater.
(See Attachment C)

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: ______) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

There may be a slight potential for spills,leaks or lagoon overflow runoff to reach the nearby Delaware River but the potential is minimal since a spill runoff collection system is in place.(See Attachments B and C

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

01 [ ] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

01 [X] F. CONTAMINATION OF SOIL — 02 [ ] OBSERVED (DATE: ______) — [X] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: ______ (Acres)
04 NARRATIVE DESCRIPTION

Vinyl chloride monomer placed in unlined lagoons and landfill could percolate into and contaminate soil.
(See Attachment C)

01 [ ] G. DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

01 [ ] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: ______) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______
04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE | 02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA — 02 ☒ OBSERVED (DATE: 6/22/81) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION
Flora surrounding lagoons was noted to be sparse during NJDEP site inspection.
(See Attachment C)

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (include name(s) of species)

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums) — 02 ☐ OBSERVED (DATE: ______) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: ______ 04 NARRATIVE DESCRIPTION
Vinyl chloride monomer placed in unlined lagoons and landfill could migrate into and contaminate groundwater and soil.(See Attachment C)

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: ______) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: ______

IV. COMMENTS

See Attached Page

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Attachment B-NJDEP Inspection reports from A. Fralinger and M. Nalbone
Attachment C-Various correspondence between NJDEP and Tenneco personnel.

IV COMMENTS

It must be noted that there are differing opinions among NJDEP personnel as to whether or not vinyl chloride monomer should be considered a hazardous material. (See Attachment C) The discrepancy over the characteristics of vinyl chloride monomer would indicate it does not have a high hazard priority. All other materials entering the lagoon are channeled through the plant waste water treatment facility first. For these reasons a low hazard rating is indicated for the lagoon areas. According to the most recent RCRA inspection (2/1/83), the facility was found in excellent condition. (See Attachment B)

REFERENCE #12

Dangerous Properties of Industrial Materials

Sixth Edition

N. IRVING SAX

Assisted by:
Benjamin Feiner/Joseph J. Fitzgerald/Thomas J. Haley/Elizabeth K. Weisburger

VNR VAN NOSTRAND REINHOLD COMPANY
NEW YORK CINCINNATI TORONTO LONDON MELBOURNE

REFERENCE #13

02-8412-15/NJH9

Return Receipt Requested

Tenneco Polymers

January 31, 1985

Mr. Joseph Logan
NUS Corporation
Raritan Center
Raritan Plaza 3
Edison, New Jersey 08337

Dear Mr. Logan:

As you requested, enclosed are the pictures and slides and monitoring well water data for the October, 1984 sample period.

The landfill activity for 1983 and 1984 are listed below:

Year	ID 27, yd^3	ID 12, yd^3
1983	494	6,138
1984	390	4,537

The ID 27 material represents scrape-out materials from our water - solid separators, while ID 12 represents the Wastewater Treatment Plant sludge volume landfilled.

If you have any questions, please give me a call.

Yours truly,

TENNECO POLYMERS, INC.

Fred W. Kanzler

*Fred W. Kanzler
Site EPA Coordinator

Enclosure

FWK/jst

cc: *R.S. Cole
*J.W. Kachtick
*W. Miringoff
*R.R. Neugold

*without attachments

REFERENCE #14

NUS CORPORATION TELECON NOTE

CONTROL NO:	DATE:	TIME:
0J-8706-13	6/24/87	1645

DISTRIBUTION:

FILE: U.S. Pipe and Foundry

BETWEEN:	OF:	PHONE:
Paul Scully (Operator)	Burlington Twp Water Department	(609) 386-0049

AND: C. LoBue (NUS)

DISCUSSION:

Question: How many people are served by Burlington Township Supply Wells #1, 2, 3 + 4

Scully: ~~PB~~ Approximately 12,000 people are served by those wells.

Carl LoBue

ACTION ITEMS:

NUS 067 REVISED 0581

REFERENCE #15

NUS CORPORATION TELECON NOTE

CONTROL NO:	DATE: 9/16/87	TIME: 1400

DISTRIBUTION: Tenneco Polymers

BETWEEN: Harry Killian	OF: Exec Director of Willingboro Municipal Utilities Authority	PHONE: (609)877-2900

AND: Joann Wagner (NUS)

DISCUSSION:

I asked Mr. Killian for information concerning the depth of wells, aquifer, number of people served, etc. He told me that they have 6 wells, ranging in depth from 258 to 400 feet, drawing from the Potomac-Raritan Formation. Approx 12,000 people served by wells. 3 of the wells are pumped to the treatment plant before going to distribution center. 2 of the wells are pumped directly into the system; and 1 well (well #6) is treated by its own treatment plant before being pumped into system. Five of the wells were purchased from Levitt and Sons, Inc. (see Water Resources Circular No. 7 Records of wells and Groundwater Quality in Burlington County, NJ) Well #6, located on Medallion Lane, was drilled June 10, 1965.

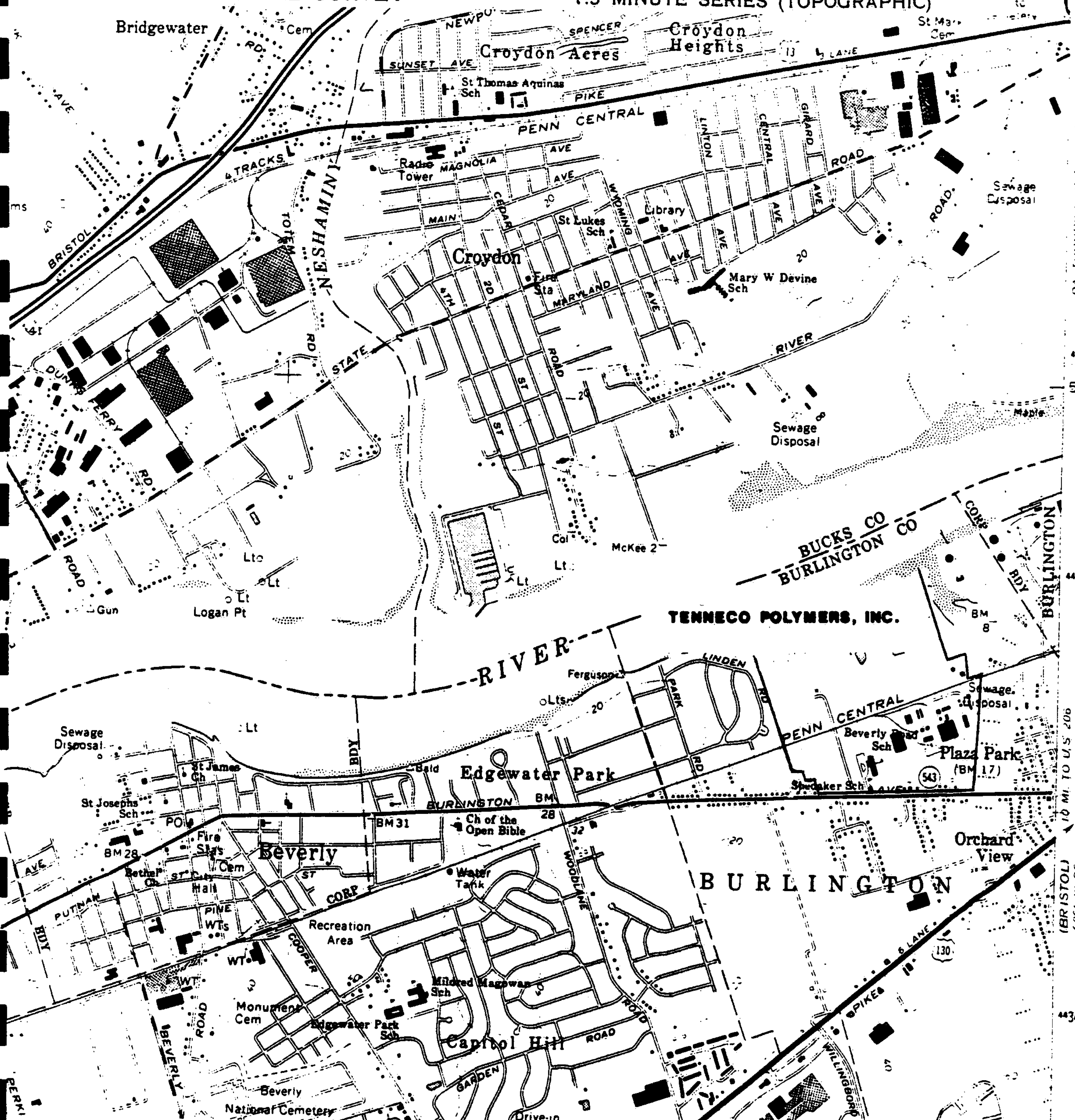
ACTION ITEMS:

NUS 067 REVISED 0581

REFERENCE #16

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BEVERLY QUADRANGLE
PENNSYLVANIA–NEW JERSEY
7.5 MINUTE SERIES (TOPOGRAPHIC)



SCALE 1:24 000

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 MILE

1 KILOMETER

MN

GN

10½°
187 MILS

0°02'
1 MIL

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 6.3 FEET

UTM GRID AND 1973 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

REFERENCE #17

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.

APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

TOWNSHIP OF BURLINGTON, NEW JERSEY BURLINGTON COUNTY

PANEL 3 OF 8

(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER

340090 0003 B

EFFECTIVE DATE:

FEBRUARY 17, 1982

Federal Emergency Management Agency

KEY TO MAP

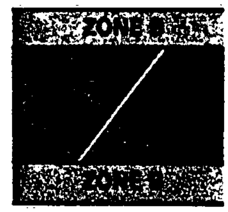
500-Year Flood Boundary

100-Year Flood Boundary

Zone Designations*

100-Year Flood Boundary

500-Year Flood Boundary



Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:

JANUARY 14, 1977

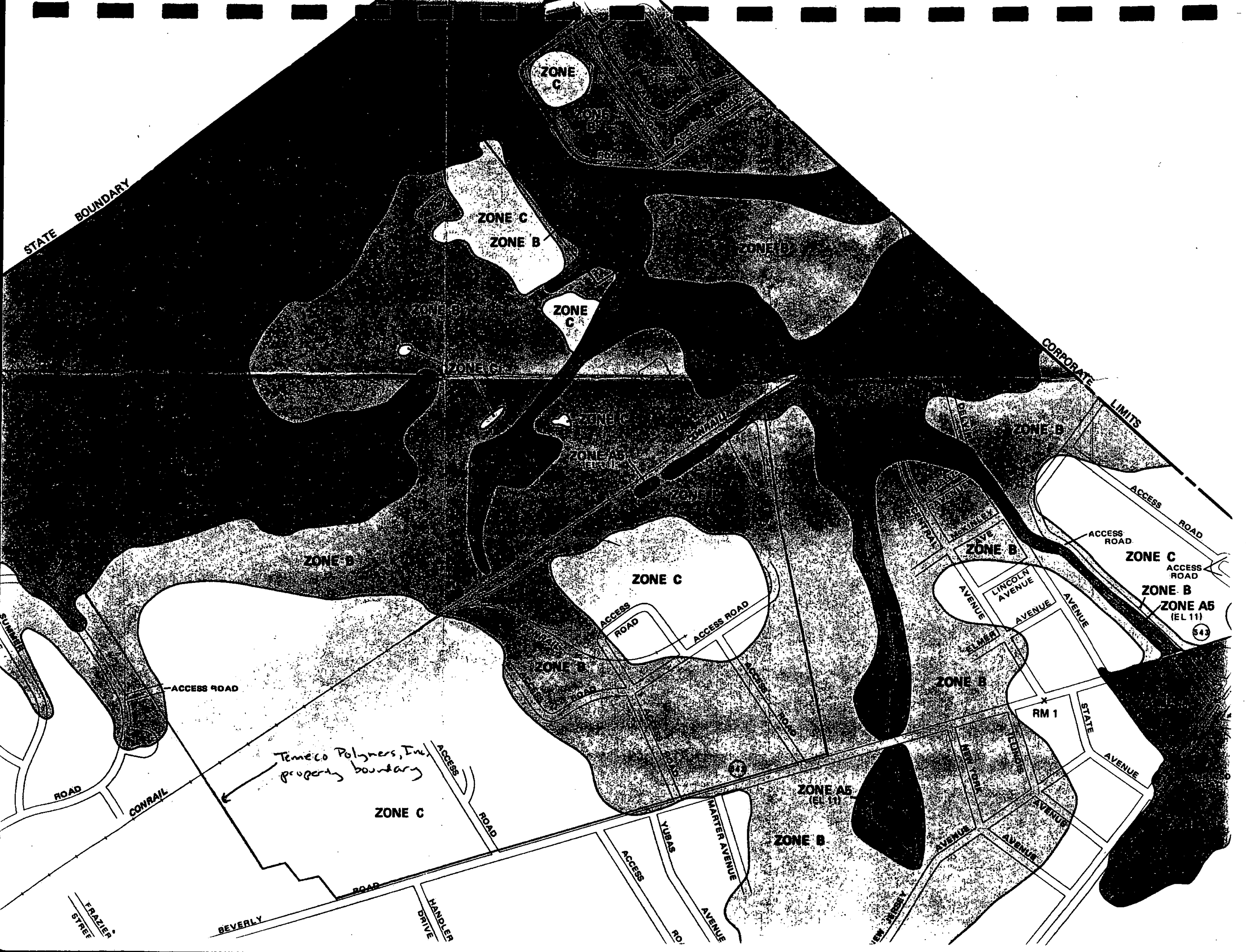
FLOOD HAZARD BOUNDARY MAP REVISIONS:

MARCH 19, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE:

FEBRUARY 17, 1982

FLOOD INSURANCE RATE MAP REVISIONS:


STATE BOUNDARY
CORPORATE LIMITS
ZONE C
ZONE B
ZONE A5
(EL 11)
ACCESS ROAD
ACCESS ROAD
ACCESS ROAD
CONRAIL
ROAD
BEVERLY
ROAD
HANDLER DRIVE
YUBAS
MARTER AVENUE
LINCOLN AVENUE
ELMER
AVENUE
STATE AVENUE
NEW YORK
AVENUE
RM 1
543
Temeco Polymers, Inc property boundary

REFERENCE #18

LEGEND

- AREA SERVED BY PRIVATE WATER SERVICE COMPANIES
- AREA SERVED BY REGIONALLY OWNED WATER SERVICE COMPANIES
- AREA SERVED BY MUNICIPALLY OWNED WATER SERVICE COMPANIES
- AREA NOT PRESENTLY SERVED BY WATER SERVICE
- □ PUBLIC SUPPLY WELLS
- ○ SURFACE WATER INTAKE
- —W— MAJOR WATER MAINS
- - - - - TOWNSHIP BOUNDARIES
- COUNTY BOUNDARIES
- STATE BOUNDARIES

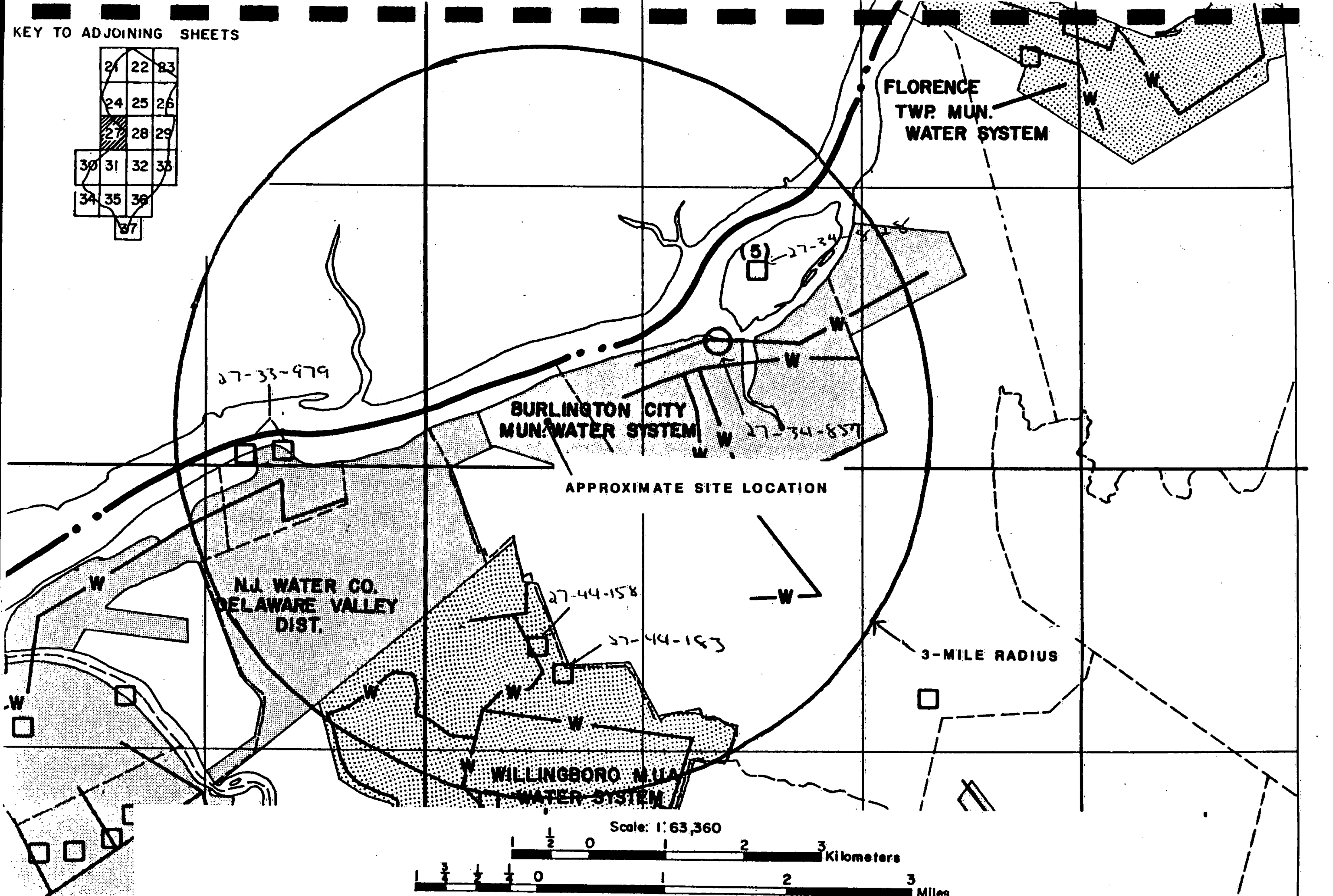
ALL MAP COORDINATES ARE FOR THE LOWER LEFT HAND CORNER

LOCATIONS AND OWNERS OF PUBLIC SUPPLY WELLS

27-02-568	Bulls Island Recreation Area
27-03-226	Sergeantsville Water Co.
27-03-491	Stockton Boro
27-05-763	Hopewell Boro
27-14-567	Washington Crossing Water Co.
27-14-589	Hopewell Twp. Board of Education
27-14-634	Hopewell Twp. Board of Education
27-15-414	Boro of Pennington
27-15-422	Boro of Pennington
27-15-445	Boro of Pennington
27-15-759	Hampton Hill Water Co.
27-15-767	Hampton Hill Water Co.
27-15-793	Hillwood Manor Water Co.
27-24-232	State of New Jersey (Civil Defense)
27-25-141	New Jersey Highway Office
27-33-979	Delaware River Water Co.
27-33-979	Delaware River Water Co.
27-33-979	Delaware River Water Co.
27-33-979	Delaware River Water Co.
27-34-664	Florence Township
27-34-828	City of Burlington
27-34-828	City of Burlington
27-34-828	City of Burlington
27-34-828	City of Burlington
27-34-828	City of Burlington
27-42-648	Riverton-Palmyra Water Co.
27-42-672	Riverton-Palmyra Water Co.
27-43-271	Riverside Township
27-43-278	Delaware Valley Water Co.
27-43-278	Delaware Valley Water Co.
27-43-286	Delaware Valley Water Co.
27-43-438	Delaware River Water Co.
27-43-529	Bridgeboro School Board
27-43-537	Delaware Valley Water Co.
27-43-539	Delran Township
27-43-543	Delaware River Water Co.
27-43-551	Holy Cross High School
27-44-158	Willingboro Water Co.
27-44-183	Willingboro Water Co.
27-44-376	N. J. Turnpike Authority
27-44-416	Willingboro Water Co.
27-44-427	Willingboro Water Co.
27-45-492	Mt. Holly Water Dept.

SURFACE WATER INTAKES

27-13-315	Lambertville Water Co.
27-13-316	Lambertville Water Co.
27-25-429	City of Trenton Water Division
27-~~4~~4-857 3	Burlington City Water Dept.



SUPERVISED BY GEORGE J. HALASI-KUN, TOPOGRAPHIC ENGINEER
DRAFTED BY JOHN G. KREMPER

ANY CORRECTIONS OR ADDITIONAL INFORMATION
WILL BE APPRECIATED

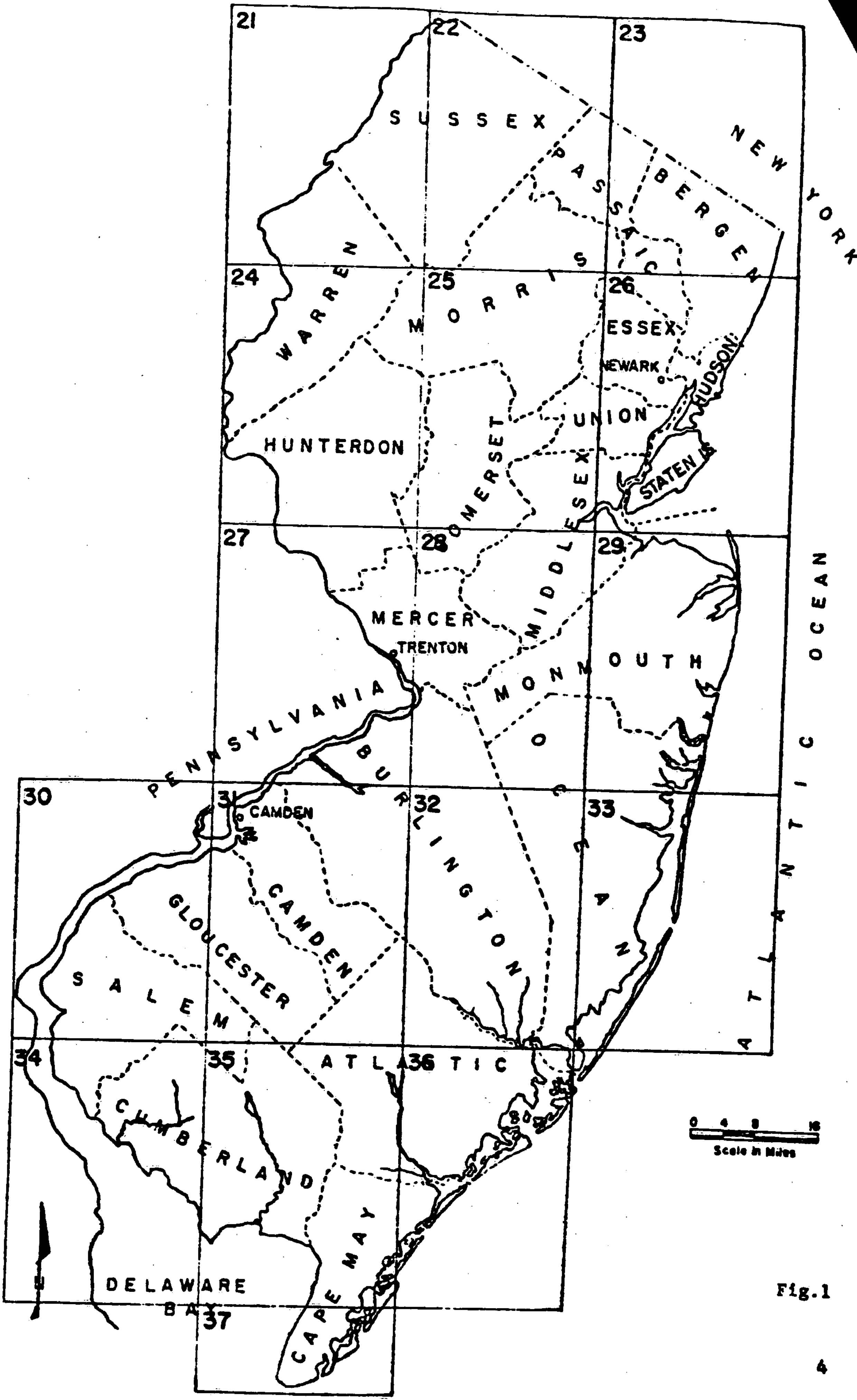

21
22
23
SUSSEX
NEW YORK
PASSAIC
BERGEN
24
25
26
WARREN
MORRIS
ESSEX
NEWARK
HUDSON
UNION
HUNTERDON
SOMERSET
MIDDLESEX
STATEN IS.
27
28
29
MERCER
TRENTON
MONMOUTH
PENNSYLVANIA
BURLINGTON
OCEAN
ATLANTIC OCEAN
30
31
32
33
CAMDEN
GLOUCESTER
SALEM
34
35
36
ATLANTIC
CUMBERLAND
CAPE MAY
DELAWARE BAY
37
0 4 8 16
Scale in Miles

Fig.1

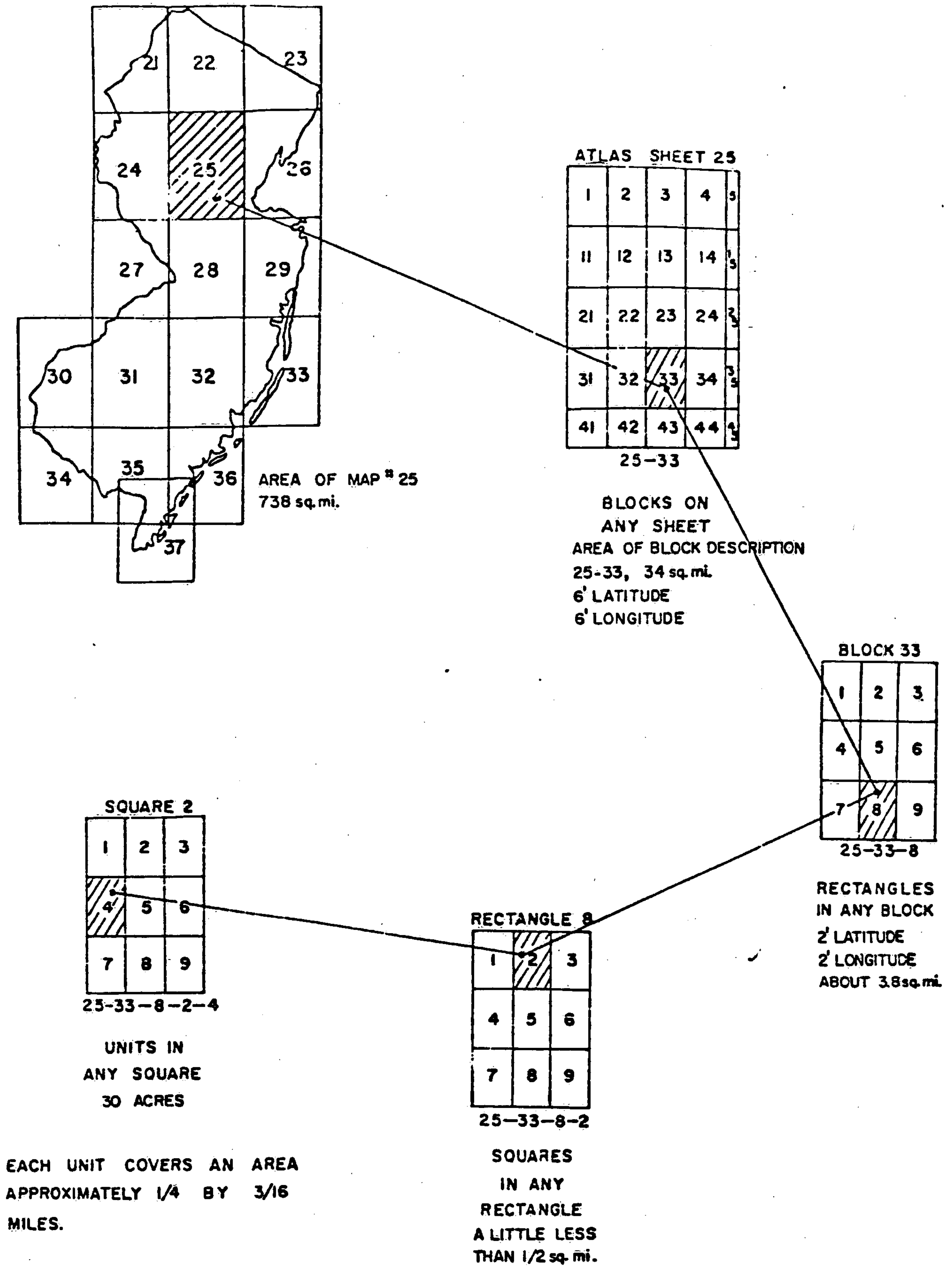


DIAGRAM SHOWING USE OF NEW JERSEY RECTANGULAR COORDINATE SYSTEM. TO LOCATE A FACILITY AT 25-33-8-2-4

Fig. 2

REFERENCE #19

ENDANGERED AND THREATENED

WILDLIFE AND PLANTS

JULY 20, 1984

50 CFR 17.11 and 17.12

Department of the Interior
U.S. Fish and Wildlife Service

Species: Common name	Species: Scientific name	Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Pupfish, Ash Meadows Amargosa	*Cyprinodon nevadensis mionectes*	U.S.A. (NV)	...do	E	117E, 127E, 130	17.95(e)	NA
Pupfish, Comanche Springs	*Cyprinodon elegans*	U.S.A. (Texas)	...do	E	1	NA	NA
Pupfish, Devils Hole	*Cyprinodon diabolis*	U.S.A. (Nevada)	...do	E	1	NA	NA
Pupfish, Leon Springs	*Cyprinodon bovinus*	U.S.A. (Texas)	...do	E	102	17.95(e)	NA
Pupfish, Owens River	*Cyprinodon radiosus*	U.S.A. (California)	...do	E	1	NA	NA
Pupfish, Warm Springs	*Cyprinodon nevadensis pectoralis*	U.S.A. (Nevada)	...do	E	2	NA	NA
Squawfish, Colorado	*Ptychocheilus lucius*	U.S.A. (AZ, CA, CO, NM, NV, UT, WY), Mexico.	...do	E	1	NA	NA
Stickleback, unarmored threespine	*Gasterosteus aculeatus williamsoni*	U.S.A. (California)	...do	E	2	NA	NA
Sturgeon, shortnose	*Acipenser brevirostrum*	U.S.A. and Canada (Atlantic Coast)	...do	E	1	NA	NA
Tango, Miyako (Tokyo bitterling)	*Tanakia tanago*	Japan	...do	E	3	NA	NA
Temolek, Ikan (minnow)	*Probarbus jullieni*	Thailand, Cambodia, Vietnam, Malaysia, Laos.	...do	E	15	NA	NA
Topminnow, Gila	*Poeciliopsis occidentalis*	U.S.A. (AZ, NM), Mexico	...do	E	1	NA	NA
Totoaba (seatrout or weakfish)	*Cynoscion macdonaldi*	Mexico (Gulf of California)	...do	E	45	NA	NA
Trout, Apache (=Arizona)	*Salmo apache*	U.S.A. (Arizona)	...do	T	1, 8	NA	17.44(a)
Trout, Gila	*Salmo gilae*	U.S.A. (New Mexico)	...do	E	1	NA	NA
Trout, greenback cutthroat	*Salmo clarki stomias*	U.S.A. (Colorado)	...do	T	1, 38	NA	17.44(f)
Trout, Lahontan cutthroat	*Salmo clarki henshawi*	U.S.A. (CA, NV)	...do	T	2, 8	NA	17.44(a)
Trout, Little Kern golden	*Salmo aguabonita whitei*	U.S.A. (California)	...do	T	37	17.95(e)	17.44(e)
Trout, Paiute cutthroat	*Salmo clarki seleniris*	...do	...do	T	1, 8	NA	17.44(a)
Woundfin	*Plagopterus argentissimus*	U.S.A. (AZ, NV, UT)	...do	E	2	NA	NA
SNAILS							
Snail, Chittenango ovate amber	*Succinea chittenangoensis*	U.S.A. (New York)	NA	T	41	NA	NA
Snail, flat-spired three-toothed	*Triodopsis platysayoides*	U.S.A. (West Virginia)	NA	T	41	NA	NA
Snail, Iowa Pleistocene	*Discus macclintocki*	U.S.A. (Iowa)	NA	E	41	NA	NA
Snail, Manus Island tree	*Papustyla pulcherrima*	Pacific Ocean: Admiralty Is. (Manus Is.)	NA	E	3	NA	NA
Snail, noonday	*Mesodon clarki nantahala*	U.S.A. (North Carolina)	NA	T	41	NA	NA
Snail, Oahu tree	*Achatinella* spp. (all species)	U.S.A. (Hawaii)	NA	E	108, 112	NA	NA
Snail, painted snake coiled forest	*Anguispira picta*	U.S.A. (Tennessee)	NA	T	41	NA	NA
Snail, Stock Island	*Orthalicus reses*	U.S.A. (Florida)	NA	T	41	NA	NA
Snail, Virginia fringed mountain	*Polygyriscus virginianus*	U.S.A. (Virginia)	NA	E	41	NA	NA
CLAMS							
Pearly mussel, Alabama lamp	*Lampsilis virescens*	U.S.A. (AL, TN)	NA	E	15	NA	NA
Pearly mussel, Appalachian monkeyface	*Quadrula sparsa*	U.S.A. (TN, VA)	NA	E	15	NA	NA
Pearly mussel, birdwing	*Conradilla caelata*	...do	NA	E	15	NA	NA
Pearly mussel, Cumberland bean	*Villosa (=Micromya) trabalis*	U.S.A. (KY, TN)	NA	E	15	NA	NA
Pearly mussel, Cumberland monkeyface	*Quadrula intermedia*	U.S.A. (AL, TN, VA)	NA	E	15	NA	NA
Pearly mussel, Curtis'	*Epioblasma (=Dysnomia) florentina curtisi.*	U.S.A. (Missouri)	NA	E	15	NA	NA
Pearly mussel, dromedary	*Dromus dromas*	U.S.A. (TN, VA)	NA	E	15	NA	NA
Pearly mussel, green-blossom	*Epioblasma (=Dysnomia) torulosa gubernaculum.*	...do	NA	E	15	NA	NA
Pearly mussel, Higgins' eye	*Lampsilis higginsi*	U.S.A. (IL, IA, MN, MO, NE, WI)	NA	E	15	NA	NA
Pearly mussel, Nicklin's	*Megalonaias nicklineana*	Mexico	NA	E	15	NA	NA
Pearly mussel, orange-footed	*Plethobasus cooperianus*	U.S.A. (AL, IN, IA, KY, OH, PA, TN)	NA	E	15	NA	NA
Pearly mussel, pale lilliput	*Toxolasma (=Carunculina) cylindrella*	U.S.A. (AL, TN)	NA	E	15	NA	NA
Pearly mussel, pink mucket	*Lampsilis orbiculata*	U.S.A. (AL, IL, IN, KY, MO, OH, PA, TN, WV).	NA	E	15	NA	NA
Pearly mussel, Tampico	*Cyrtonaias tampicoensis tecomatensis*	Mexico	NA	E	15	NA	NA

REFERENCE #20

NUS CORPORATION 0001-C 02-8706-19 TELECON NOTE

CONTROL NO: 02-8706-19

DATE: 6/24/87

TIME: 1600

DISTRIBUTION:

Tenneco Polymers Inc.

BETWEEN: Mr. ~~Eage~~ Fahey

OF: Burlington Water Works

PHONE: (609) 386-0307

AND: Joann Wagner (NUS)

DISCUSSION:

Source of water for city of Burlington municipal supply is surface water intakes on back bay of Delaware River, supplemented by man-made lake when needed. Wells on Burlington Island are not used. The city of Burlington was interconnected with Burlington Twp. (which uses wells) - now valved off. The city waterworks plant is 7 yrs old, pumps an avg of 1.5 mgd; capacity is 4 mgd. The population served by the City of Burlington is 10,546

ACTION ITEMS:

NUS 067 REVISED 0581

REFERENCE #21

Page 1

11

May 23, 1984

CODES: AGRICULTURAL/HORTICULTURAL WATER USAGE CERTIFICATIONS DATA BASE RECORD

ITEM	CHARACTER	CODED	DESCRIPTION
Certification Procedure	1	I	Initial
Use "R" for those coming in now - Ernest & I have to revise the others slightly		R	Renewal of Previous Permit or Grandfather Affidavit
		M	Renewal of Previous Permit or Grandfather Affidavit with modification
		C	Issued by County Agent
		D	Issued by County Agent with NJDEP recommendation
		P	Issued after Public Notice
		H	Issued after Public Notice and Hearing
		A	Issued after Appeal
County Agent Title	1	S	Senior County Agent
		O	Other
Type of Crop Produced	1 2	[redacted]	Sod/Forages
			Grains and Feed
			Dairy
			Poultry
			Truck
			Nursery
			Livestock
			Bees and Apiary
			Fishery
			Trees/Forestry/Game
			Fruits and Vegetables
			Other
County	2	AT	Atlantic
		BE	Bergen
		BU	Burlington
		CD	Camden
		CM	Cape May
		CU	Cumberland
		ES	Essex
		GL	Gloucester
		HS	Hudson
		HN	Hunterdon
		ME	Mercer
		MI	Middlesex
		MN	Monmouth
		MR	Morris
		OC	Ocean
		PA	Passaic
		SA	Salem
		SO	Somerset
		SU	Sussex
		UN	Union
		WA	Warren
Critical Area use - Y or N ("Yes" or "No")			
DRBC Y or N ("Yes" or "No")			
Diversion Source			
Stream Y or N			
Well Y or N			
Pond Y or N			

Page 2

CODES: WATER ALLOCATION PERMIT DATABASE RECORD
AQUIFER AND WATER-BEARING STRATA BY EPOCH

PLEISTOCENE	
Glacial Undifferentiated	GQgu
Stratified Drift	GQsd
Terminal Moraine	GQtm
Bridgeton	GQbs
Cape May	GQcm
Holly Beach Mbr.	GQchb
Pennsauken	GQps
TERTIARY	
Beacon Hill	GTbh
Cohansey	GTch
Cohansey & Kirkwood	GTck
Kirkwood	GTkw
Upper	GTkwu
Lower	GTkwl
Piney Point Mbr.	GTkpp
Shark River Marl	GTsr
Manasquan Marl	GTmq
Vincentown Sand	GTvt
Hornerstown Marl	GTht
CRETACEOUS	
Red Bank	GKrb
Navesink	GKns
Mount Laurel	GKml
Wenonah	GKwe
Mount Laurel & Wenonah	GKmw
Marshalltown	GKmt
Englishtown	GKet
Woodbury	GKwb
Merchantville	GKmv
Magothy	GKm
Raritan	GKr
Old Bridge	GKrob
Sayreville Sand	GKrss
Farrington	GKrf
TRIASSIC	
Brunswick Formation	GTrb
Lockatong Formation	GTrl
Stockton Formation	GTrs
Basalt	GTrbs
Diabase	GTrdb
Conglomerate	GTrcg

CODES: WATER ALLOCATION PERMIT DATABASE RECORD
RIVER BASINS AND SUB-BASINS

DELAWARE RIVER BASIN	
Unknown or Non-Specific	SD
Alloways Creek	SDAll
Alexsocken Creek	SDAle
Assiscunk Creek	SDAsc
Assunpink	SDAsp
Big Timber Creek	SDBig
Blacks Creek	SDBla
Cooper's Creek	SDCoo
Crafts Creek	SDCra
Crosswicks Creek	SDCro
Flat Brook	SDFla
Hakihokake Creek	SDHak
Harihokake Creek	SDHar
Jacob's Creek	SDJac
Lockatong Creek	SDLoc
Lopatcong	SDLop
Mantua Creek	SDMnt
Musconetcong	SDMus
Nichisakawick Creek	SDNic
Old Man's Creek	SDOld
Paulins Kill	SDPau
Pensauken	SDPen
Pequest	SDPst
Pohatcong	SDPoh
Raccoon Creek	SDRac
Rancocas Creek	SDRan
Salem River	SDSal
Wickecheoke Creek	SDWic
RARITAN RIVER BASIN	
Unknown or Non-Specific	SR
Lawrence Brook	SRLaw
Lower Raritan	SRLow
Millstone	SRMil
North Branch Raritan	SRNBr
South Branch Raritan	SRSBr
South River	SRSRv
PASSAIC RIVER BASIN	
Unknown or Non-Specific	SP
Lower Mid-Passaic	SPLMP
Lower Passaic	SPLow
Peckman	SPPec
Pequannock	SPPnk
Pompton	SPPom
Ramapo	SPRam
Rockaway	SPRoc
Saddle	SPSad
Upper Mid-Passaic	SPUMP
Upper Passaic	SPUpp
Wanaque	SPWan
Whippany	SPWhi

02/04/86

Wells

Page 4

AGRICULTURAL DATA BASE

CERT: BU0014   CRIT: NAME: MURPHY, ALBERT W.

ADDRESS: 1703 SOUTH RT. 130   TOWN: BURLINGTON

STATE: NJ   ZIP: 08016   PHONE: 6093869026

MUN: BURLINGTON TWP   COUNTY: 05   DRBC: Y

LAT: 400330   LON: 745241   NJC: 2744129   CERTPROC: R

OTHERCRT: CROP: 11   ACREAGE: 80

TOTALDIV: .26   PREVNUM: P-18   PREVDIV: .25

STREAM: QTY1:   SOURCE1:
WELL: Y   QTY2: .29   SOURCE2: GKR
POND: Y   QTY3: .29   SOURCE3: SD

DATECERT: 042484   SPCOND:

02/04/86

Page 5

AGRICULTURAL DATA BASE

CERT: BU0020 CRIT: NAME: HEISLER, ALBERT G.

ADDRESS: BOX 128 TOWN: PAOLI

STATE: PA ZIP: 19301 PHONE: 2153865380

MUN: BURLINGTON TWP. COUNTY: 05 DRBC: Y

LAT: 400325 LON: 745305 NJC: 2744128 CERTPROC: R

OTHERCRT: CROP: 06,11 ACREAGE: 55

TOTALDIV: .35 PREVNUM: P-21 PREVDIV: .24

STREAM: QTY1: SOURCE1:
WELL: Y QTY2: .39 SOURCE2: GKR
FUND: QTY3: SOURCE3:

DATECERT: 050184 SPCOND:

02/04/86

AGRICULTURAL DATA BASE

CERT: BU0048 CRIT: NAME: VARSACI, JAMES & SONS

ADDRESS: 1005 BRIDGEBORO RD. TOWN: DELANCO

STATE: NJ ZIP: 08010 PHONE: 6098778077

MUN: EDGEWATERPARK COUNTY: 05 DRBC: Y

LAT: 400230 LON: 745450 NJC: 2743383 CERTPROC: R

OTHERCRT: BU47,49,50 CROP: 11 ACREAGE: 30

TOTALDIV: PREVNUM: P-63 PREVDIV: .15

STREAM: QTY1: SOURCE1:
WELL: Y QTY2: .11 SOURCE2: GKR
POND: Y QTY3: .11 SOURCE3: GKR

DATECERT: 061284 SPCOND:

Page 7

AGRICULTURAL DATA BASE

[illegible] CERT: NAME: [illegible]

ADDRESS: [illegible] ROAD RD. TOWN: BURLINGTON

STATE: [illegible] ZIP: 08016 PHONE: [illegible]

MUN: BURLINGTON TWP. COUNTY: 05 DRBC: Y

LAT: 400320 LON: 744936 NJC: 2744318 CERTPROC: R

OTHERCRT: CROP: 06,11 ACREAGE: 75

TOTALDIV: .24 PREVNUM: P-411 PREVDIV: .16

STREAM: QTY1: SOURCE1:
WELL: Y QTY2: .25 SOURCE2: GKR
POND: Y QTY3: .001 SOURCE3: GKR

DATECERT: 082784 SPCOND:

AGRICULTURAL DATA BASE

[illegible] NAME: [illegible]HART, HARR[illegible] R.

[illegible] TOWN: [illegible]VERLY

[illegible] ZIP: [illegible] PHONE: 6098710843

[illegible] EDGEWATER PARK COUNTY: 05 DRBC: Y

LAT: [illegible]230 LON: 745545 NJC: 2743371 CERTPROC: R

OTHERNOS: CROP: 11 ACREAGE: 25

TOTALDIV: .06 PREVNUM: P-282 PREVDIV: .158

STREAM: QTY1: SOURCE1:
WELL: Y QTY2: .06 SOURCE2: GKR
POND: QTY3: SOURCE3:

DATECERT: 122084 SPCOND:

02/04/86

Surface Intakes

AGRICULTURAL DATA BASE

CERT: BU0113 CRIT: NAME: ANDERSON, PHILIP

ADDRESS: CREEK RD. TOWN: DELRAN

STATE: NJ ZIP: PHONE: 6094614922

MUN: DELRAN TWP. COUNTY: 05 DRBC: Y

LAT: 410035 LON: 745445 NJC: 2743626 CERTPROC: R

OTHERCRT: CROP: 11 ACREAGE: 130

TOTALDIV: 65 PREVNUM: PREVDIV:

STREAM: Y QTY1: .71 SOURCE1: SDRAN
WELL: QTY2: SOURCE2:
POND: QTY3: SOURCE3:

DATECERT: 012485 SPCOND:

02/04/05

AGRICULTURAL DATA BASE

CERT: B00484   CRIT: NAME: ROSS, GEORGE

ADDRESS: 310 RANCOCAS AVE.   TOWN: DELANCO

STATE: NJ   ZIP: 08075   PHONE: 6094613753

MUN: DELANCO   COUNTY: 05   DRBC: Y

LAT: 400258   LON: 745710   NJC: 2743254   CERTPROG: R

OTHERCRT: ....   CROP: 06.11...   ACREAGE: 15.........

TOTALDIV: .10...   PREVNUM: ......   PREVDIV: ......

STREAM: Y   QTY1: .11...   SOURCE1: SDRAN
  WELL: .   QTY2: SOURCE2:
  POND: .   QTY3: SOURCE3:

DATECERT: 010305   SPCOND:

02/04/86

AGRICULTURAL DATA BASE

CERT: BU0075 CRIT: NAME: SUTTON, TOM, JR.

ADDRESS: 2003 OLD YORK RD. TOWN: BURLINGTON

STATE: NJ ZIP: 08016 PHONE: 6094992272

MUN: BURLINGTON, FLORENCE COUNTY: 05 DRBC: Y

LAT: 400420 LON: 744800 NJC: 2735774 CERTPROC: R

OTHERCRT: .... CROP: 11...... ACREAGE: 99........

TOTALDIV: .58... PREVNUM: ...... PREVDIV: ......

STREAM: Y QTY1: .64... SOURCE1: SDASC
WELL: . QTY2: SOURCE2:
POND: . QTY3: SOURCE3:

DATECERT: 122084 SPCOND:

[illegible]/04/86

AGRICULTURAL DATA BASE

CERT: [illegible]0050   CRIT: NAME: VARSACI, JAMES & SONS

ADDRESS: 1005 BRIDGEBORO RD.   TOWN: DELANCO

STATE: NJ   ZIP: 08016   PHONE: 609[illegible]78077

MUN: DELANCO TWP.   COUNTY: 05   DRBC: Y

LAT: 40[illegible]244   LON: [illegible]725   NJU: 27432[illegible]   CERTPROC: R

OTHERCRT: BU47,40,4[illegible]   CROP: 11   ACREAGE: [illegible]

TOTALDIV: .10   PREVNUM: PREVDIV:

STREAM: [illegible]   QTY1: .11   SOURCE1: SDRAN
WELL: QTY2:   SOURCE2:
POND: QTY3:   SOURCE3:

DATECERT: 061284   SPCOND:

Page 13

[illegible]

AGRICULTURAL DATA BASE

CERT: BU0038 CRIT: NAME: PUGLIA,ARTHUR

ADDRESS: BURLINGTON-COLUMBUS RD. TOWN: MANSFIELD

STATE: NJ ZIP: 08022 PHONE: 6092981809

MUN: SPRINGFIELD TWP. COUNTY: 05 DRBC: Y

LAT: 400153 LON: 744601 NJC: 2[illegible]45433 CERTPROC: R

OTHERCRT: CROP: 11 ACREAGE: 85

TOTALDIV: .55 PREVNUM: PREVDIV:

STREAM: Y QTY1: .61 SOURCE1: SDRAN
WELL: QTY2: SOURCE2:
POND: Y QTY3: .61 SOURCE3: SDRAN

DATECERT: 052804 SPCOND:

03/14/86

AGRICULTURAL DATA BASE

CERT: R00024   CRIT: NAME: RUSS BROTHERS

ADDRESS: CREEP RD., BOX 60   TOWN: DELANCO

STATE: NJ   ZIP: 08075   PHONE: 6094610012

MUN: DELANCO TWP.   COUNTY: 05   DRBC: Y

LAT: 400238   LON: 745662   NJC: 2743282   CERTPROC: N

OTHERCERT: CROP: 11   ACREAGE: 1

SW

TOTALDIV: .26   PREVNUM: PREVDIV:

STREAM: QTY1: .29   SOURCE1: SDRAN
WELL: QTY2:   SOURCE2:
POND: QTY3: .29   SOURCE3: SDRAN

DATECERT: 050484   SPCOND:

02/04/06

AGRICULTURAL DATA BASE

CERT: E00023 CRIT: NAME: PENNINGTON, FRANK

ADDRESS: CREEK RD. TOWN: DELANCO

STATE: NJ ZIP: 08075 PHONE: 6094614454

MUN: DELANCO TWP. COUNTY: 05 DRBC: Y

LAT: 400158 LON: 745601 NJC: 2744355 CERTPROG: 1

OTHERCRT: CROP: 11 ACREAGE: 150

TOTALDIV: 25 PREVNUM: PREVDIV:

STREAM: Y QTY1: .27 SOURCE1: SDRAN

WELL: QTY2: SOURCE2:

POND: Y QTY3: .27 SOURCE3: SDRAN

DATECERT: 050484 SPCOND:

Sh

02/04/05

AGRICULTURAL DATA BASE

CERT: BU0008 CRIT: NAME: HUNTER, RUSSEL & SON

ADDRESS: UNION LANDING RD. TOWN: CINNAMINSON

STATE: NJ ZIP: 08077 PHONE: 6098296834

MUN: CINNAMINSON TWP. COUNTY: 05 DRBC: Y

LAT: 400035 LON: 745940 NJU: 2743472 CERTPROC: R

OTHERCERT: CROP: 11 ACREAGE: 100

TOTALDIV: .47 PREVNUM: PREVDIV:

STREAM: Y QTY1: .71 SOURCE1: SD
WELL: QTY2: SOURCE2:
POND: QTY3: 1.36 SOURCE3: SD

DATECERT: 042304 SPCOND:

REFERENCE #22

NUS CORPORATION

TELEPHONE NOTE

CONTROL NO.	DATE	TIME
	6/25/87	1530

DISTRIBUTION

Tenneco Polymers

BETWEEN:	OF:	PHONE:
Craig Leshner	Burlington Twp Fire Dept	(609) 386-4445

AND: Joann Wagner — NUS

DISCUSSION:

I asked Mr. Leshner if he thought Tenneco Polymers posed a threat of fire or explosion - he said that they have had no problems with Tenneco, the company has strict safety policies and has worked very cooperatively with the fire dept. Mr. Leshner does not consider the facility to be a problem in terms of fire/explosion

ACTION ITEMS:

REFERENCE #23

DRAFT

GRAPHICAL EXPOSURE MODELING SYSTEM

(GEMS)

USER'S GUIDE

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PESTICIDES AND TOXIC SUBSTANCES
EXPOSURE EVALUATION DIVISION
Task No. 4
Contract No. 68Ø16618
William Wood - Project Officer
Loren Hall - Task Manager

Prepared by:

GENERAL SOFTWARE CORPORATION
84Ø1 Corporate Drive
Landover, Maryland 2Ø785

Submitted: June 25, 1984

MASTER AREA REFERENCE FILE (MARF) OF THE 1980 CENSUS

Source

The Master Area Reference File (MARF) is a proprietary product of Donnelly Marketing, Inc., a subsidiary of Dunn and Bradstreet, and is available only to EPA users and to contractors engaged in EPA projects.

Description

The complete corrected MARF of the 1980 Census, with geographic coordinates for small geographic areas, is installed for GEMS on a separate disk pack. It consists of four subfiles, one for each major census geographic region, and is available to users when that disk pack is mounted. The file has a variety of location identification information, including region, state, county, place, census tracts and enumeration districts or block groups (See Figure C-1 for illustrations). It also contains population count by race, the number of occupied and owner-occupied housing units, group quarters, and number of families for all the enumeration districts/block groups for the continental United States, Hawaii, and Alaska.

CEDPOP, a subset of the MARF of the 1980 Census, is accessible through GEMS. In addition to total population and household counts, the file includes geographic coordinates for the population-weighted centroid of each census block group or enumeration district (BG/ED) in the file.

Use

The complete MARF 80 Census file, installed in GEMS on a separate disk, is expected to be used heavily by GEMS users to identify household and population by racial groups at any required geographic level. County aggregate populations have already been created from this file.

CEDPOP was interfaced with ATM80 in GEMS to provide estimates of population sizes exposed to concentrations of airborne chemicals around a release site and with BOXMOD80 to provide population estimates within area source regions. The population centroids are identified, and populations are accumulated in sectors (typically the sixteen wind direction sectors) surrounding the center point within a user-specified number of radial distances out from the center.

The CEDPOP file also is accessed by CENSUS DATA and RADII-5 procedures under the GEODATA HANDLING operation in GEMS. CENSUS DATA accumulates population and housing counts by up to ten user-specified radial distances and from one-to-sixteen sectors. The RADII-5 program tabulates the same information (except housing counts) and displays the centroid locations for user-specified circular distances around a center point.

ANALYTICAL DATA
NAME: TENNECO POLYMERS INC.
SAMPLING DATE: 01/17/85
CASE: 3805

VOLATILES

SAMPLE NUMBER	NJH9-W1	NJH9-W2	NJH9-W3	NJH9-W4	NJH9-W5	NJH9-W6	NJH9-S1	NJH9-S2	NJH9-S3
TRAFFIC REPORT NUMBER	BA462	BA463	BA464	BA465	BA466	BA467	BA468	BA469	BA470
MATRIX	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	SOIL	SOIL	AQUEOUS
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/KG	UG/KG	UG/L
Chloromethane								Q	
Bromomethane								Q	
Vinyl Chloride					450		6J	Q	
Chloroethane								Q	
Methylene Chloride	38		330	Q	190	3J	Q	Q	
Acetone				Q			Q	Q	
Carbon Disulfide								Q	
1,1-Dichloroethene								Q	
1,1-Dichloroethane								Q	
Trans-1,2-Dichloroethene		11	15	10				Q	
Chloroform								Q	
1,2-Dichloroethane								Q	
2-Butanone								Q	
1,1,1-Trichloroethane								Q	
Carbon Tetrachloride								Q	
Vinyl Acetate								Q	
Bromodichloromethane								Q	
1,1,2,2-Tetrachloroethane								Q	
1,2-Dichloropropane								Q	
Trans-1,3-Dichloropropene								Q	
Trichloroethene		7					48	Q	
Dibromochloromethane								Q	
1,1,2-Trichloroethane								Q	
Benzene								Q	
Cis-1,3-Dichloropropene								Q	
2-Chloroethylvinylether								Q	
Bromoform								Q	
2-Hexanone								Q	
4-Methyl-2-Pentanone								Q	
Tetrachloroethene								Q	
Toluene						9		Q	9
Chlorobenzene								Q	
Ethylbenzene								Q	
Styrene								Q	
Total Xylenes								Q	

NOTES TO ORGANICS DATA:
Blank space - compound analyzed for but not detected
Q - analysis did not pass QA/QC requirements
J - compound present above the instrument detection limit, but below the contract-specified detection limit.
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination
NR - analysis not required

ANALYTICAL DATA
NAME: TENNECO POLYMERS INC.
SAMPLING DATE: 01/17/85
CASE: 3805

SEMI-VOLATILES

SAMPLE NUMBER	NJH9-W1	NJH9-W2	NJH9-W3	NJH9-W4	NJH9-W5	NJH9-W6	NJH9-S1	NJH9-S2	NJH9-S3
TRAFFIC REPORT NUMBER	BA462	BA463	BA464	BA465	BA466	BA467	BA468	BA469	BA470
MATRIX	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	SOIL	SOIL	AQUEOUS
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/KG	UG/KG	UG/L
Phenol	Q	Q	Q	Q				Q	NR
Bis(2-Chloroethyl)Ether	Q	Q	Q	Q				Q	NR
2-Chlorophenol	Q	Q	Q	Q				Q	NR
1,3-Dichlorobenzene	Q	Q	Q	Q				Q	NR
1,4-Dichlorobenzene	Q	Q	Q	Q				Q	NR
Benzyl Alcohol	Q	Q	Q	Q				Q	NR
1,2-Dichlorobenzene	Q	Q	Q	Q				Q	NR
2-Methylphenol	Q	Q	Q	Q				Q	NR
Bis(2-Chloroisopropyl)Ether	Q	Q	Q	Q				Q	NR
4-Methylphenol	Q	Q	Q	Q				Q	NR
N-Nitroso-Di-n-Propylamine	Q	Q	Q	Q				Q	NR
Hexachloroethane	Q	Q	Q	Q				Q	NR
Nitrobenzene	Q	Q	Q	Q				Q	NR
Isophorone	Q	Q	Q	Q				Q	NR
2-Nitrophenol	Q	Q	Q	Q				Q	NR
2,4-Dimethylphenol	Q	Q	Q	Q				Q	NR
Benzoic Acid	Q	Q	Q	Q				Q	NR
Bis(2-Chloroethoxy)Methane	Q	Q	Q	Q				Q	NR
2,4-Dichlorophenol	Q	Q	Q	Q				Q	NR
1,2,4-Trichlorobenzene	Q	Q	Q	Q				Q	NR
Naphthalene	Q	Q	Q	Q				Q	NR
4-Chloroaniline	Q	Q	Q	Q				Q	NR
Hexachlorobutadiene	Q	Q	Q	Q				Q	NR
4-Chloro-3-Methylphenol	Q	Q	Q	Q				Q	NR
2-Methylnaphthalene	Q	Q	Q	Q				Q	NR
Hexachlorocyclopentadiene	Q	Q	Q	Q				Q	NR
2,4,6-Trichlorophenol	Q	Q	Q	Q				Q	NR
2,4,5-Trichlorophenol	Q	Q	Q	Q				Q	NR
2-Chloronaphthalene	Q	Q	Q	Q				Q	NR
2-Nitroaniline	Q	Q	Q	Q				Q	NR
Dimethyl Phthalate	Q	Q	Q	Q				Q	NR
Acenaphthylene	Q	Q	Q	Q				Q	NR
3-Nitroaniline	Q	Q	Q	Q				Q	NR
Acenaphthene	Q	Q	Q	Q				Q	NR
2,4-Dinitrophenol	Q	Q	Q	Q				Q	NR
4-Nitrophenol	Q	Q	Q	Q				Q	NR
Dibenzofuran	Q	Q	Q	Q				Q	NR
2,4-Dinitrotoluene	Q	Q	Q	Q				Q	NR
2,6-Dinitrotoluene	Q	Q	Q	Q				Q	NR
Diethylphthalate	Q	Q	Q	Q				Q	NR
4-Chlorophenylphenyl ether	Q	Q	Q	Q				Q	NR
Fluorene	Q	Q	Q	Q				Q	NR
4-Nitroaniline	Q	Q	Q	Q				Q	NR
4,6-Dinitro-2-Methylphenol	Q	Q	Q	Q				Q	NR

ANALYTICAL DATA
NAME: TENNECO POLYMERS INC.
SAMPLING DATE: 01/17/85
CASE: 3805

SEMI-VOLATILES

SAMPLE NUMBER	NJH9-W1	NJH9-W2	NJH9-W3	NJH9-W4	NJH9-W5	NJH9-W6	NJH9-S1	NJH9-S2	NJH9-S3
TRAFFIC REPORT NUMBER	BA462	BA463	BA464	BA465	BA466	BA467	BA468	BA469	BA470
MATRIX	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	SOIL	SOIL	AQUEOUS
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/KG	UG/KG	UG/L
N-Nitrosodiphenylamine	Q	Q	Q	Q				Q	NR
4-Bromophenylphenyl ether	Q	Q	Q	Q				Q	NR
Hexachlorobenzene	Q	Q	Q	Q				Q	NR
Pentachlorophenol	Q	Q	Q	Q				Q	NR
Phenanthrene	Q	Q	Q	Q				Q	NR
Anthracene	Q	Q	Q	Q				Q	NR
Di-n-Butylphthalate	Q	Q	Q	Q				Q	NR
Fluoranthene	Q	Q	Q	Q				Q	NR
Pyrene	Q	Q	Q	Q				Q	NR
Butylbenzylphthalate	Q	Q	Q	Q				Q	NR
3,3'-Dichlorobenzidine	Q	Q	Q	Q				Q	NR
Benzo(a)Anthracene	Q	Q	Q	Q				Q	NR
Bis(2-Ethylhexyl)Phthalate	Q	Q	Q	Q				Q	NR
Chrysene	Q	Q	Q	Q				Q	NR
Di-n-Octyl Phthalate	Q	Q	Q	Q				Q	NR
Benzo(b)Fluoranthene	Q	Q	Q	Q				Q	NR
Benzo(k)Fluoranthene	Q	Q	Q	Q				Q	NR
Benzo(a)Pyrene	Q	Q	Q	Q				Q	NR
Indeno(1,2,3-cd)Pyrene	Q	Q	Q	Q				Q	NR
Dibenzo(a,h)Anthracene	Q	Q	Q	Q				Q	NR
Benzo(ghi)Perylene	Q	Q	Q	Q				Q	NR

NOTES TO ORGANICS DATA:
Blank space - compound analyzed for but not detected
Q - analysis did not pass QA/QC requirements
J - compound present above the instrument detection limit, but below the contract-specified detection limit.
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination
NR - analysis not required

ANALYTICAL DATA
NAME: TENNECO POLYMERS INC.
SAMPLING DATE: 01/17/85
CASE: 3805

PESTICIDES/PCBs									
SAMPLE NUMBER	NJH9-W1	NJH9-W2	NJH9-W3	NJH9-W4	NJH9-W5	NJH9-W6	NJH9-S1	NJH9-S2	NJH9-S3
TRAFFIC REPORT NUMBER	BA462	BA463	BA464	BA465	BA466	BA467	BA468	BA469	BA470
MATRIX	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	SOIL	SOIL	AQUEOUS
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/KG	UG/KG	UG/L
SAMPLE NUMBER	NJH9-W1	NJH9-W2	NJH9-W3	NJH9-W4	NJH9-W5	NJH9-W6	NJH9-S1	NJH9-S2	NJH9-S3
TRAFFIC REPORT NUMBER	BA462	BA463	BA464	BA465	BA466	BA467	BA468	BA469	BA470
MATRIX	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	SOIL	SOIL	AQUEOUS
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/KG	UG/KG	UG/L
Alpha-BHC									NR
Beta-BHC									NR
Delta-BHC									NR
Gamma-BHC (Lindane)									NR
Heptachlor									NR
Aldrin									NR
Heptachlor Epoxide									NR
Endosulfan I									NR
Dieldrin									NR
4,4'-DDE									NR
Endrin									NR
Endosulfan II									NR
4,4'-DDD									NR
Endosulfan sulfate									NR
Endrin Aldehyde									NR
4,4'-DDT									NR
Methoxychlor									NR
Endrin Ketone									NR
Chlordane									NR
Toxaphene									NR
Aroclor-1016									NR
Aroclor-1221									NR
Aroclor-1232									NR
Aroclor-1242									NR
Aroclor-1248									NR
Aroclor-1254									NR
Aroclor-1260									NR

NOTES TO ORGANICS DATA:
Blank space - compound analyzed for but not detected
Q - analysis did not pass QA/QC requirements
J - compound present above the instrument detection limit, but below the contract-specified detection limit.
B - compound found in laboratory blank as well as the sample, and indicates possible/probable blank contamination
NR - analysis not required

ANALYTICAL DATA
NAME: TENNECO POLYMERS INC.
SAMPLING DATE: 01/17/85
CASE: 3805

INORGANICS

SAMPLE NUMBER	NJH9-W1	NJH9-W2	NJH9-W3	NJH9-W4	NJH9-W5	NJH9-W6	NJH9-S1	NJH9-S2	NJH9-S3
TRAFFIC REPORT NUMBER	MBA774	MBA775	MBA776	MBA777	MBA778	MBA779	MBA780	MBA781	MBA782
MATRIX	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	AQUEOUS	SOIL	SOIL	AQUEOUS
UNITS	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	MG/KG	MG/KG	UG/KG
Aluminum	133000	5150	47700	54600	500	[36]	7420	5810	
Antimony	159		89	148			39		
Arsenic		[6.0]	28	14			[5.4]		
Barium	655	[86]	427	290			[71]	[53]	[6.1]
Beryllium	20		[4]	[4.8]			[0.53]	[0.6]	
Cadmium	38		17	31					
Calcium	106000	57300	78900	24000	48100		4160	[2310]	19300
Chromium	480	44	255	316	[4.8]		Q	20	
Cobalt	285	241	1800	116			[12]	[7.2]	
Copper	489	73	139	292	43		Q	17	
Iron	681000	19800	270000	399000	2260	[49]	22900	16800	
Lead	280	20	96	282			Q	15	
Magnesium	73100	43500	50900	21000	[3770]		[3190]	[2480]	4840
Manganese	13800	3340	18100	4180	90		161	160	
Mercury	0.27		0.27						
Nickel	464	95	619	233	[21]		[9.3]	[12]	
Potassium	33400	[4680]	15100	19500	5980		3520	[2340]	
Selenium				E					
Silver	46		18	29			[3.3]		
Sodium	18900	30300	32000	38400	153000		Q	Q	Q
Thallium									
Tin									
Vanadium	918	[24]	193	352			32	[20]	
Zinc	859	72	474	464	31	[4.1]	Q	84	

NOTES TO INORGANICS DATA:
Blank space - compound analyzed for but not detected
Q - analysis did not pass QA/QC requirements
[]- compound present above the instrument detection limit, but below the contract-specified detection limit.
B - compound found in laboratory blank as well as the sample and indicates possible/probable blank contamination
E - value estimated due to interference
NR- analysis not required

Page 6

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA461

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

LABORATORY NAME: COMPUCHEM
LAB SAMPLE ID NO: CK040579C12
SAMPLE MATRIX: VOA LOW LIQUID
DATA RELEASE
AUTHORIZED BY: JB

CASE: 3805
QC REPORT NO:
CONTRACT NO: 68\01\7017
DATE SAMPLE
RECEIVED: 1\18\85

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 1\22\85
DATE ANALYZED: 1\22\85
CONC/DIL FACTOR: 1 PH: N\A
PERCENT MOISTURE: N\A
PERCENT MOISTURE (DECANTED):

CAS NUMBER		ug/l	CAS NUMBER		ug/l
74-87-3	CHLOROMETHANE	10 U	79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5 U
74-83-9	BROMOMETHANE	10 U	78-87-5	1, 2-DICHLOROPROPANE	5 U
75-01-4	VINYL CHLORIDE	10 U	10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5 U
75-00-3	CHLOROETHANE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-09-2	METHYLENE CHLORIDE	38	124-48-1	DIBROMOCHLOROMETHANE	5 U
67-64-1	ACETONE	10 U	79-00-5	1, 1, 2-TRICHLOROETHANE	5 U
75-15-0	CARBON DISULFIDE	5 U	71-43-2	BENZENE	5 U
75-35-4	1, 1-DICHLOROETHENE	5 U	10061-01-5	CIS-1, 3-DICHLOROPROPENE	5 U
75-34-3	1, 1-DICHLOROETHANE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
156-60-5	TRANS-1, 2-DICHLOROETHENE	5 U	75-25-2	BROMOFORM	5 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	10 U
107-06-2	1, 2-DICHLOROETHANE	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
78-93-3	2-BUTANONE	10 U	127-18-4	TETRACHLOROETHENE	5 U
71-55-6	1, 1, 1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5 U
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

DATA REPORTING QUALIFIERS

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >/= 10ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

Page 7

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SAMPLE NUMBER
E[illegible]

SEMIVOLATILE
CONCENTRATION: LOW
DATE EXTRACTED / PREPARED: 1\21\85
DATE ANALYZED: 1\30\85
CONC/DIL FACTOR: 2.0

CAS NUMBER		ug/l	CAS NUMBER		
62-75-9	N-NITROSODIMETHYLAMINE	20 U	83-32-9	ACENAPHTHENE	20 U
108-95-2	PHENOL	~~20 U~~	51-28-5	2, 4-DINITROPHENOL	~~[illegible]~~
62-53-3	ANILINE	20 U	100-02-7	4-NITROPHENOL	~~[illegible]~~
111-44-4	BIS(2-CHLOROETHYL)ETHER	20 U	132-64-9	DIBENZOFURAN	20 U
95-57-8	2-CHLOROPHENOL	~~20 U~~	121-14-2	2, 4-DINITROTOLUENE	20 U
541-73-1	1, 3-DICHLOROBENZENE	20 U	606-20-2	2, 6-DINITROTOLUENE	20 U
106-46-7	1, 4-DICHLOROBENZENE	20 U	84-66-2	DIETHYLPHTHALATE	20 U
100-51-6	BENZYL ALCOHOL	20 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20 U
95-50-1	1, 2-DICHLOROBENZENE	20 U	86-73-7	FLUORENE	20 U
95-48-7	2-METHYLPHENOL	~~20 U~~	100-01-6	4-NITROANILINE	100 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	20 U	534-52-1	4, 6-DINITRO-2-METHYLPHENOL	~~100~~ U
106-44-5	4-METHYLPHENOL	~~20 U~~	86-30-6	N-NITROSODIPHENYLAMINE (1)	20 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	20 U
67-72-1	HEXACHLOROETHANE	20 U	118-74-1	HEXACHLOROBENZENE	20 U
98-95-3	NITROBENZENE	20 U	87-86-5	PENTACHLOROPHENOL	~~100~~ U
78-59-1	ISOPHORONE	20 U	85-01-8	PHENANTHRENE	20 U
88-75-5	2-NITROPHENOL	~~20 U~~	120-12-7	ANTHRACENE	20 U
105-67-9	2, 4-DIMETHYLPHENOL	~~20 U~~	84-74-2	DI-N-BUTYLPHTHALATE	20 U
65-85-0	BENZOIC ACID	~~100 U~~	206-44-0	FLUORANTHENE	20 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	20 U	92-87-5	BENZIDINE	100 U
120-83-2	2, 4-DICHLOROPHENOL	~~20 U~~	129-00-0	PYRENE	20 U
120-82-1	1, 2, 4-TRICHLOROBENZENE	20 U	85-68-7	BUTYLBENZYLPHTHALATE	20 U
91-20-3	NAPHTHALENE	20 U	91-94-1	3, 3-DICHLOROBENZIDINE	40 U
106-47-8	4-CHLOROANILINE	20 U	56-55-3	BENZO(A)ANTHRACENE	20 U
87-68-3	HEXACHLOROBUTADIENE	20 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	20 U
59-50-7	4-CHLORO-3-METHYLPHENOL	~~20 U~~	218-01-9	CHRYSENE	20 U
91-57-6	2-METHYLNAPHTHALENE	20 U	117-84-0	DI-N-OCTYL PHTHALATE	20 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	20 U	205-99-2	BENZO(B)FLUORANTHENE	20 U
88-06-2	2, 4, 6-TRICHLOROPHENOL	~~20~~ U	207-08-9	BENZO(K)FLUORANTHENE	20 U
95-95-4	2, 4, 5-TRICHLOROPHENOL	~~100~~ U	50-32-8	BENZO(A)PYRENE	20 U
91-58-7	2-CHLORONAPHTHALENE	20 U	193-39-5	INDENO(1, 2, 3-CD)PYRENE	20 U
88-74-4	2-NITROANILINE	100 U	53-70-3	DIBENZ(A, H)ANTHRACENE	20 U
131-11-3	DIMETHYL PHTHALATE	20 U	191-24-2	BENZO(G, H, I)PERYLENE	20 U
208-96-8	ACENAPHTHYLENE	20 U			
99-09-2	3-NITROANILINE	100 U			

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SAMPLE NUMBER
[illegible]

SEMIVOLATILE
CONCENTRATION: LOW
DATE EXTRACTED / PREPARED: 1\31\85 (1\21\85 orig.)
DATE ANALYZED: 2\04\85
CONC/DIL FACTOR: 2.0

CAS NUMBER		ug/l
62-75-9	N-NITROSODIMETHYLAMINE	20 U
108-95-2	PHENOL	~~20~~ U
62-53-3	ANILINE	~~20~~ U
111-44-4	BIS(2-CHLOROETHYL) ETHER	~~20~~ U
95-57-8	2-CHLOROPHENOL	~~20~~ U
541-73-1	1, 3-DICHLOROBENZENE	~~20~~ U
106-46-7	1, 4-DICHLOROBENZENE	~~20~~ U
100-51-6	BENZYL ALCOHOL	~~20~~ U
95-50-1	1, 2-DICHLOROBENZENE	~~20~~ U
95-48-7	2-METHYLPHENOL	~~20~~ U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	~~20~~ U
106-44-5	4-METHYLPHENOL	~~20~~ U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	~~20~~ U
67-72-1	HEXACHLOROETHANE	~~20~~ U
98-95-3	NITROBENZENE	~~20~~ U
78-59-1	ISOPHORONE	~~20~~ U
88-75-5	2-NITROPHENOL	~~20~~ U
105-67-9	2, 4-DIMETHYLPHENOL	~~20~~ U
65-85-0	BENZOIC ACID	~~100~~ U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	~~20~~ U
120-83-2	2, 4-DICHLOROPHENOL	~~20~~ U
120-82-1	1, 2, 4-TRICHLOROBENZENE	~~20~~ U
91-20-3	NAPHTHALENE	~~20~~ U
106-47-8	4-CHLOROANILINE	~~20~~ U
87-68-3	HEXACHLOROBUTADIENE	~~20~~ U
59-50-7	4-CHLORO-3-METHYLPHENOL	~~20~~ U
91-57-6	2-METHYLNAPHTHALENE	20 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	20 U
88-06-2	2, 4, 6-TRICHLOROPHENOL	~~20~~ U
95-95-4	2, 4, 5-TRICHLOROPHENOL	~~100~~ U
91-58-7	2-CHLORONAPHTHALENE	20 U
88-74-4	2-NITROANILINE	100 U
131-11-3	DIMETHYL PHTHALATE	20 U
208-96-8	ACENAPHTHYLENE	~~20~~ U
99-09-2	3-NITROANILINE	~~100~~ U

CAS NUMBER		ug/l
83-32-9	ACENAPHTHENE	~~20~~ U
51-28-5	2, 4-DINITROPHENOL	~~100~~ U
100-02-7	4-NITROPHENOL	~~100~~ U
132-64-9	DIBENZOFURAN	~~20~~ U
121-14-2	2, 4-DINITROTOLUENE	~~20~~ U
606-20-2	2, 6-DINITROTOLUENE	20 U
84-66-2	DIETHYLPHTHALATE	20 U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20 U
86-73-7	FLUORENE	20 U
100-01-6	4-NITROANILINE	~~100~~ U
534-52-1	4, 6-DINITRO-2-METHYLPHENOL	~~100~~ U
86-30-6	N-NITROSODIPHENYLAMINE (1)	20 U
101-55-3	4-BROMOPHENYL-PHENYLETHER	20 U
118-74-1	HEXACHLOROBENZENE	20 U
87-86-5	PENTACHLOROPHENOL	~~100~~ U
85-01-8	PHENANTHRENE	20 U
120-12-7	ANTHRACENE	20 U
84-74-2	DI-N-BUTYLPHTHALATE	20 U
206-44-0	FLUORANTHENE	20 U
92-87-5	BENZIDINE	100 U
129-00-0	PYRENE	20 U
85-68-7	BUTYLBENZYLPHTHALATE	20 U
91-94-1	3, 3-DICHLOROBENZIDINE	40 U
56-55-3	BENZO(A)ANTHRACENE	20 U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	20 U
218-01-9	CHRYSENE	20 U
117-84-0	DI-N-OCTYL PHTHALATE	20 U
205-99-2	BENZO(B)FLUORANTHENE	20 U
207-08-9	BENZO(K)FLUORANTHENE	20 U
50-32-8	BENZO(A)PYRENE	20 U
193-39-5	INDENO(1, 2, 3-CD)PYRENE	20 U
53-70-3	DIBENZ(A, H)ANTHRACENE	20 U
191-24-2	BENZO(G, H, I)PERYLENE	~~20~~ U

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

NUS CORPORATION
SUPERFUND DIVISION

INTERNAL CORRESPONDENCE
C-584-1-85-169

TO: STAFF

DATE: JANUARY 2, 1985

FROM: PAMELA KANETA

COPIES.

SUBJECT: UPDATE ON POPULATION DATA RETRIEVAL

After looking through a diversity of sites, a few points have arisen regarding the way census data is stored and retrieved. The MARF database is organized by the population weighted centroid of each census block group or enumeration district. This should not cause any problems in fairly populated areas. However, rural census data can often skew towards the more populated areas, underestimating sparser areas closest to the site. This should especially be considered when the retrieved data indicates there are zero residents within the first quarter and/or half mile radius. Since the HRS model is concerned with residential risk assessment, the population within these radii should be estimated from a topographic map or from the site inspection.

Another important consideration is the total area of the site. Since we use latitude/longitude coordinates to define the site, the surrounding radii are based on a point source. This is not applicable for sites such as landfills where the areal extent can be as much as forty or fifty acres, or larger. The HRS model specifically requests population within one, two and three miles of the ~~site~~ boundaries. Therefore, large sites should be approximated by a circular area (i.e. estimate a radius for the site borders) and the distance measurements should extend from those borders.

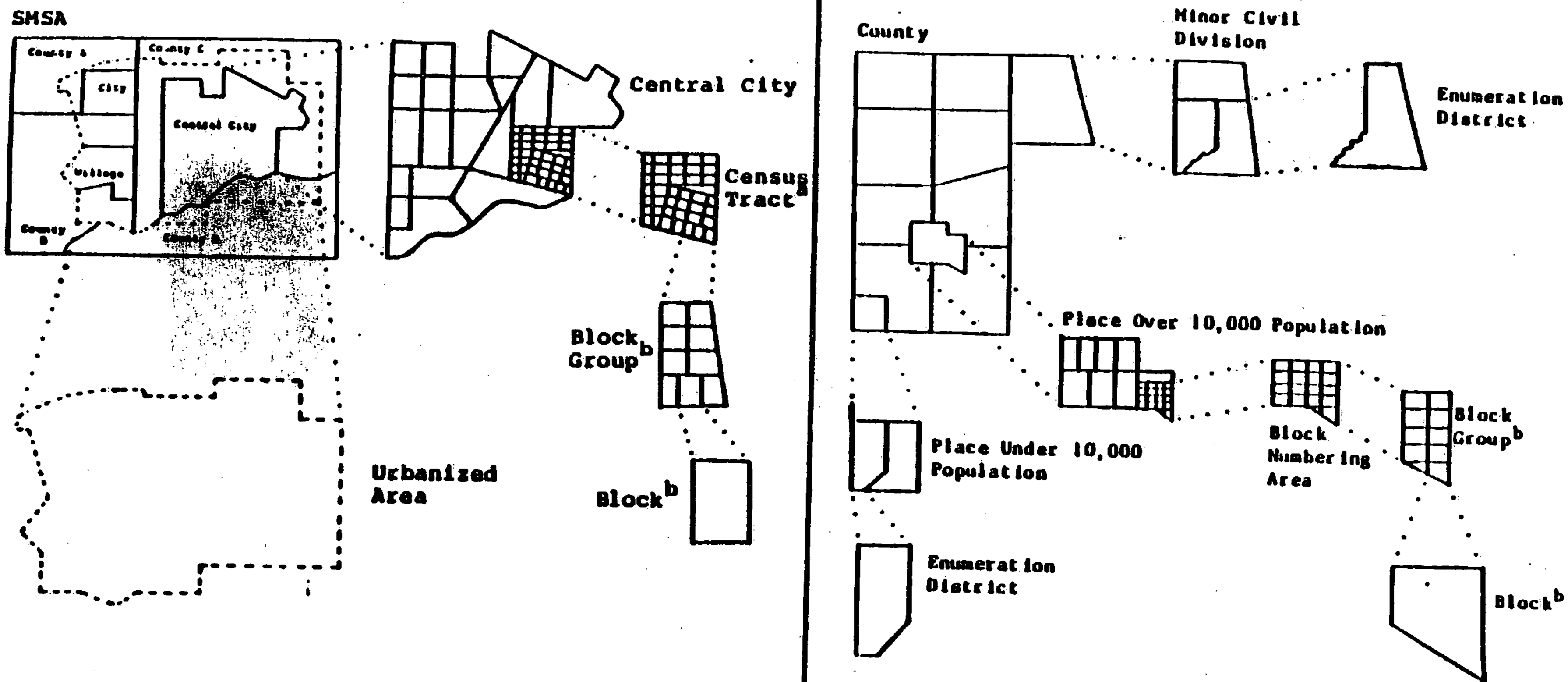
Finally, the output table needs some clarification. The population and number of houses are given independently as subtotals for each concentric donut. In order to obtain the totals for each successive distance, the subtotals for all shorter distances must be added.

If there are any futher questions or problems, please bring them to my attention.

PK/mas

Approved ________

NUS 384 58 1182



Inside Urbanized Area

Outside Urbanized Area

[a]The entire SMSA is subdivided into census tracts.

[b]Blocks and block groups do not have symbolized boundaries as do the other areas, but are identified by number.

Figure C-1. Geographic Hierarchy Inside and Outside Urbanized Areas (UA's)

TENNECO POLYMERS INC.

Lat: 40°04'20"N Long: 74°52'47"W

Data List of Dataset: NJ25 Number of Records = 6

REC #	POP	HOUSE	DISTANCE	SECTOR			
1	785	246	0.400000	1	¼	785	246
2	758	275	0.810000	1	½	1543	521
3	3697	1386	1.60000	1	1	5240	1907
4	22906	7532	3.20000	1	2	28146	9439
5	47195	15424	4.80000	1	3	75341	24863
6	45412	14605	6.40000	1	4	120753	39468
					mile radius	pop	house

REFERENCE #24

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA462

ORGANICS ANALYSIS DATA SHEET
(PAGE 3)

PESTICIDE/PCBS

CONCENTRATION: LOW LIQUID
DATE EXTRACTED / PREPARED: 1\25\85
DATE ANALYZED: 1\26\85
CONC/DIL FACTOR: 1

CAS NUMBER		
319-84-6	ALPHA-BHC	0.05 U
319-85-7	BETA-BHC	0.05 U
319-86-8	DELTA-BHC	0.05 U
58-89-9	GAMMA-BHC (LINDANE)	0.05 U
76-44-8	HEPTACHLOR	0.05 U
309-00-2	ALDRIN	0.05 U
1024-57-3	HEPTACHLOR EPOXIDE	0.05 U
959-98-8	ENDOSULFAN I	0.05 U
60-57-1	DIELDRIN	0.10 U
72-55-9	4, 4-DDE	0.10 U
72-20-8	ENDRIN	0.10 U
33213-65-9	ENDOSULFAN II	0.10 U
72-54-8	4, 4-DDD	0.10 U
7421-93-4	ENDRIN ALDEHYDE	0.10 U
1031-07-8	ENDOSULFAN SULFATE	0.10 U
50-29-3	4, 4-DDT	0.10 U
72-43-5	METHOXYCHLOR	0.50 U
53494-70-5	ENDRIN KETONE	0.10 U
57-74-9	CHLORDANE	0.50 U
8001-35-2	TOXAPHENE	1.00 U
12674-11-2	AROCLOR-1016	0.50 U
11104-28-2	AROCLOR-1221	0.50 U
11141-16-5	AROCLOR-1232	0.50 U
53469-21-9	AROCLOR-1242	0.50 U
12672-29-6	AROCLOR-1248	0.50 U
11097-69-1	AROCLOR-1254	1.00 U
11096-82-5	AROCLOR-1260	1.00 U

VI = VOLUMN OF EXTRACT INJECTED (UL)
VS = VOLUMN OF WATER EXTRACTED (ML)
WS = WEIGHT OF SAMPLE EXTRACTED (G)
VT = VOLUMN OF TOTAL EXTRACT (UL)

VS: 1000 OR WS: VT: 10.000 VI: 1

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
EA463

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

LABORATORY NAME: COMPUCHEM
LAB SAMPLE ID NO: CN0405P0C12
SAMPLE MATRIX: VOA LOW LIQUID
DATA RELEASE
AUTHORIZED BY: JK

CASE: 3502
QC REPORT NO:
CONTRACT NO: 68\01\7017
DATE SAMPLE
RECEIVED: 1\18\85

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 1\22\85
DATE ANALYZED: 1\22\85
CONC/DIL FACTOR: 1 PH: N\A
PERCENT MOISTURE: N\A
PERCENT MOISTURE (DECANTED):

CAS NUMBER		ug/l	CAS NUMBER		ug/l
74-87-3	CHLOROMETHANE	10 U	79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5 U
74-83-9	BROMOMETHANE	10 U	78-87-5	1, 2-DICHLOROPROPANE	5 U
75-01-4	VINYL CHLORIDE	10 U	10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5 U
75-00-3	CHLOROETHANE	10 U	79-01-6	TRICHLOROETHENE	7
75-09-2	METHYLENE CHLORIDE	5 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
67-64-1	ACETONE	10 U	79-00-5	1, 1, 2-TRICHLOROETHANE	5 U
75-15-0	CARBON DISULFIDE	5 U	71-43-2	BENZENE	5 U
75-35-4	1, 1-DICHLOROETHENE	5 U	10061-01-5	CIS-1, 3-DICHLOROPROPENE	5 U
75-34-3	1, 1-DICHLOROETHANE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
156-60-5	TRANS-1, 2-DICHLOROETHENE	11	75-25-2	BROMOFORM	5 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	10 U
107-06-2	1, 2-DICHLOROETHANE	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
78-93-3	2-BUTANONE	10 U	127-18-4	TETRACHLOROETHENE	5 U
71-55-6	1, 1, 1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5 U
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

DATA REPORTING QUALIFIERS

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/ dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >/= 10ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/ probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SAMPLE NUMBER
[illegible]

SEMIVOLATILE
CONCENTRATION: LOW
DATE EXTRACTED / PREPARED: 1\21\85
DATE ANALYZED: 1\30\85
CONC/DIL FACTOR: 2.0

CAS NUMBER		ug/l
62-75-9	N-NITROSODIMETHYLAMINE	20 U
108-95-2	PHENOL	~~20 U~~
62-53-3	ANILINE	20 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	20 U
95-57-8	2-CHLOROPHENOL	~~20 U~~
541-73-1	1, 3-DICHLOROBENZENE	20 U
106-46-7	1, 4-DICHLOROBENZENE	20 U
100-51-6	BENZYL ALCOHOL	20 U
95-50-1	1, 2-DICHLOROBENZENE	20 U
95-48-7	2-METHYLPHENOL	~~20 U~~
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	20 U
106-44-5	4-METHYLPHENOL	~~20 U~~
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20 U
67-72-1	HEXACHLOROETHANE	20 U
98-95-3	NITROBENZENE	20 U
78-59-1	ISOPHORONE	20 U
88-75-5	2-NITROPHENOL	~~20 U~~
105-67-9	2, 4-DIMETHYLPHENOL	~~20 U~~
65-85-0	BENZOIC ACID	~~100~~ U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	20 U
120-83-2	2, 4-DICHLOROPHENOL	~~20 U~~
120-82-1	1, 2, 4-TRICHLOROBENZENE	20 U
91-20-3	NAPHTHALENE	20 U
106-47-8	4-CHLOROANILINE	20 U
87-68-3	HEXACHLOROBUTADIENE	20 U
59-50-7	4-CHLORO-3-METHYLPHENOL	~~20 U~~
91-57-6	2-METHYLNAPHTHALENE	20 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	20 U
88-06-2	2, 4, 6-TRICHLOROPHENOL	~~20 U~~
95-95-4	2, 4, 5-TRICHLOROPHENOL	~~100 U~~
91-58-7	2-CHLORONAPHTHALENE	20 U
88-74-4	2-NITROANILINE	100 U
131-11-3	DIMETHYL PHTHALATE	20 U
208-96-8	ACENAPHTHYLENE	20 U
99-09-2	3-NITROANILINE	100 U

CAS NUMBER		ug/l
83-32-9	ACENAPHTHENE	20 U
51-28-5	2, 4-DINITROPHENOL	~~100 U~~
100-02-7	4-NITROPHENOL	~~100 U~~
132-64-9	DIBENZOFURAN	20 U
121-14-2	2, 4-DINITROTOLUENE	20 U
606-20-2	2, 6-DINITROTOLUENE	20 U
84-66-2	DIETHYLPHTHALATE	20 U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20 U
86-73-7	FLUORENE	20 U
100-01-6	4-NITROANILINE	100 U
534-52-1	4, 6-DINITRO-2-METHYLPHENOL	~~100 U~~
86-30-6	N-NITROSODIPHENYLAMINE (1)	20 U
101-55-3	4-BROMOPHENYL-PHENYLETHER	20 U
118-74-1	HEXACHLOROBENZENE	20 U
87-86-5	PENTACHLOROPHENOL	~~100 U~~
85-01-8	PHENANTHRENE	20 U
120-12-7	ANTHRACENE	20 U
84-74-2	DI-N-BUTYLPHTHALATE	20 U
206-44-0	FLUORANTHENE	20 U
92-87-5	BENZIDINE	100 U
129-00-0	PYRENE	20 U
85-68-7	BUTYLBENZYLPHTHALATE	20 U
91-94-1	3, 3-DICHLOROBENZIDINE	40 U
56-55-3	BENZO(A)ANTHRACENE	20 U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	20 U
218-01-9	CHRYSENE	20 U
117-84-0	DI-N-OCTYL PHTHALATE	20 U
205-99-2	BENZO(B)FLUORANTHENE	20 U
207-08-9	BENZO(K)FLUORANTHENE	20 U
50-32-8	BENZO(A)PYRENE	20 U
193-39-5	INDENO(1, 2, 3-CD)PYRENE	20 U
53-70-3	DIBENZ(A, H)ANTHRACENE	20 U
191-24-2	BENZO(G, H, I)PERYLENE	20 U

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

Page 12
All semivolatile data is rejected
Holding time before extraction
exceeded contractual requirements
(by days)

S G

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SAMPLE NUMBER
[illegible]

SEMIVOLATILE
CONCENTRATION: LOW
DATE EXTRACTED / PREPARED: 1\30\85 (1\21\85 orig.)
DATE ANALYZED: 2\01\85
CONC/DIL FACTOR: 2.9

CAS NUMBER		ug/l	CAS NUMBER		ug/l
62-75-9	N-NITROSODIMETHYLAMINE	~~29 U~~	83-32-9	ACENAPHTHENE	29 U
108-95-2	PHENOL	~~29 U~~	51-28-5	2, 4-DINITROPHENOL	~~145 U~~
62-53-3	ANILINE	~~29 U~~	100-02-7	4-NITROPHENOL	~~145 U~~
111-44-4	BIS(2-CHLOROETHYL) ETHER	29 U	132-64-9	DIBENZOFURAN	29 U
95-57-8	2-CHLOROPHENOL	~~29 U~~	121-14-2	2, 4-DINITROTOLUENE	29 U
541-73-1	1, 3-DICHLOROBENZENE	~~29~~ U	606-20-2	2, 6-DINITROTOLUENE	29 U
106-46-7	1, 4-DICHLOROBENZENE	~~29 U~~	84-66-2	DIETHYLPHTHALATE	29 U
100-51-6	BENZYL ALCOHOL	~~29~~ U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	29 U
95-50-1	1, 2-DICHLOROBENZENE	29 U	86-73-7	FLUORENE	29 U
95-48-7	2-METHYLPHENOL	~~29 U~~	100-01-6	4-NITROANILINE	145 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	29 U	534-52-1	4, 6-DINITRO-2-METHYLPHENOL	~~145 U~~
106-44-5	4-METHYLPHENOL	~~29 U~~	86-30-6	N-NITROSODIPHENYLAMINE (1)	29 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	29 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	29 U
67-72-1	HEXACHLOROETHANE	29 U	118-74-1	HEXACHLOROBENZENE	29 U
98-95-3	NITROBENZENE	29 U	87-86-5	PENTACHLOROPHENOL	~~145~~ U
78-59-1	ISOPHORONE	29 U	85-01-8	PHENANTHRENE	29 U
88-75-5	2-NITROPHENOL	~~29 U~~	120-12-7	ANTHRACENE	29 U
105-67-9	2, 4-DIMETHYLPHENOL	~~29 U~~	84-74-2	DI-N-BUTYLPHTHALATE	29 U
65-85-0	BENZOIC ACID	~~145 U~~	206-44-0	FLUORANTHENE	29 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	~~29~~ U	92-87-5	BENZIDINE	145 U
120-83-2	2, 4-DICHLOROPHENOL	~~29 U~~	129-00-0	PYRENE	29 U
120-82-1	1, 2, 4-TRICHLOROBENZENE	~~29~~ U	85-68-7	BUTYLBENZYLPHTHALATE	29 U
91-20-3	NAPHTHALENE	29 U	91-94-1	3, 3-DICHLOROBENZIDINE	58 U
106-47-8	4-CHLOROANILINE	29 U	56-55-3	BENZO(A)ANTHRACENE	29 U
87-68-3	HEXACHLOROBUTADIENE	29 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	[illegible]
59-50-7	4-CHLORO-3-METHYLPHENOL	~~29 U~~	218-01-9	CHRYSENE	29 U
91-57-6	2-METHYLNAPHTHALENE	29 U	117-84-0	DI-N-OCTYL PHTHALATE	29 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	29 U	205-99-2	BENZO(B)FLUORANTHENE	[illegible]
88-06-2	2, 4, 6-TRICHLOROPHENOL	~~29 U~~	207-08-9	BENZO(K)FLUORANTHENE	29 U
95-95-4	2, 4, 5-TRICHLOROPHENOL	~~145~~ U	50-32-8	BENZO(A)PYRENE	29 U
91-58-7	2-CHLORONAPHTHALENE	29 U	193-39-5	INDENO(1, 2, 3-CD)PYRENE	29 U
88-74-4	2-NITROANILINE	145 U	53-70-3	DIBENZ(A, H)ANTHRACENE	29 U
131-11-3	DIMETHYL PHTHALATE	29 U	191-24-2	BENZO(G, H, I)PERYLENE	~~29~~ U
208-96-8	ACENAPHTHYLENE	29 U			
99-09-2	3-NITROANILINE	145 U			

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA463

ORGANICS ANALYSIS DATA SHEET
(PAGE 3)

PESTICIDE/PCBS

CONCENTRATION: LOW LIQUID
DATE EXTRACTED / PREPARED: 1\25\85
DATE ANALYZED: 1\26\85
CONC/DIL FACTOR: 1

CAS NUMBER		
319-84-6	ALPHA-BHC	0.05 U
319-85-7	BETA-BHC	0.05 U
319-86-8	DELTA-BHC	0.05 U
58-89-9	GAMMA-BHC (LINDANE)	0.05 U
76-44-8	HEPTACHLOR	0.05 U
309-00-2	ALDRIN	0.05 U
1024-57-3	HEPTACHLOR EPOXIDE	0.05 U
959-98-8	ENDOSULFAN I	0.05 U
60-57-1	DIELDRIN	0.10 U
72-55-9	4, 4-DDE	0.10 U
72-20-8	ENDRIN	0.10 U
33213-65-9	ENDOSULFAN II	0.10 U
72-54-8	4, 4-DDD	0.10 U
7421-93-4	ENDRIN ALDEHYDE	0.10 U
1031-07-8	ENDOSULFAN SULFATE	0.10 U
50-29-3	4, 4-DDT	0.10 U
72-43-5	METHOXYCHLOR	0.50 U
53494-70-5	ENDRIN KETONE	0.10 U
57-74-9	CHLORDANE	0.50 U
8001-35-2	TOXAPHENE	1.00 U
12674-11-2	AROCLOR-1016	0.50 U
11104-28-2	AROCLOR-1221	0.50 U
11141-16-5	AROCLOR-1232	0.50 U
53469-21-9	AROCLOR-1242	0.50 U
12672-29-6	AROCLOR-1248	0.50 U
11097-69-1	AROCLOR-1254	1.00 U
11096-82-5	AROCLOR-1260	1.00 U

VI = VOLUMN OF EXTRACT INJECTED (UL)
VS = VOLUMN OF WATER EXTRACTED (ML)
WS = WEIGHT OF SAMPLE EXTRACTED (G)
VT = VOLUMN OF TOTAL EXTRACT (UL)

VS: 1000 OF WS: VT: 10,000 VI: 1

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
B4464

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

LABORATORY NAME: COMPUCHEM
LAB SAMPLE ID NO: CR040591B12
SAMPLE MATRIX: VOA ~~MEDIUM~~ LOW LIQUID
DATA RELEASE
AUTHORIZED BY: JG

CASE: 3805
QC REPORT NO: ______________
CONTRACT NO: 68\01\7017
DATE SAMPLE
RECEIVED: 1\18\85

VOLATILE COMPOUNDS
CONCENTRATION: ~~MEDIUM~~ LOW JG
DATE EXTRACTED/PREPARED: 1\22\85
DATE ANALYZED: 1\22\85
CONC/DIL FACTOR: 2 PH: N\A
PERCENT MOISTURE: N\A
PERCENT MOISTURE (DECANTED):

CAS NUMBER		ug/l	CAS NUMBER		ug/l
74-87-3	CHLOROMETHANE	20 U	79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	10 U
74-83-9	BROMOMETHANE	20 U	78-87-5	1, 2-DICHLOROPROPANE	10 U
75-01-4	VINYL CHLORIDE	20 U	10061-02-6	TRANS-1, 3-DICHLOROPROPENE	10 U
75-00-3	CHLOROETHANE	20 U	79-01-6	TRICHLOROETHENE	10 U
75-09-2	METHYLENE CHLORIDE	330	124-48-1	DIBROMOCHLOROMETHANE	10 U
67-64-1	ACETONE	20 U	79-00-5	1, 1, 2-TRICHLOROETHANE	10 U
75-15-0	CARBON DISULFIDE	10 U	71-43-2	BENZENE	10 U
75-35-4	1, 1-DICHLOROETHENE	10 U	10061-01-5	CIS-1, 3-DICHLOROPROPENE	10 U
75-34-3	1, 1-DICHLOROETHANE	10 U	110-75-8	2-CHLOROETHYLVINYLETHER	20 U
156-60-5	TRANS-1, 2-DICHLOROETHENE	15	75-25-2	BROMOFORM	10 U
67-66-3	CHLOROFORM	10 U	591-78-6	2-HEXANONE	20 U
107-06-2	1, 2-DICHLOROETHANE	10 U	108-10-1	4-METHYL-2-PENTANONE	20 U
78-93-3	2-BUTANONE	20 U	127-18-4	TETRACHLOROETHENE	10 U
71-55-6	1, 1, 1-TRICHLOROETHANE	10 U	108-88-3	TOLUENE	10 U
56-23-5	CARBON TETRACHLORIDE	10 U	108-90-7	CHLOROBENZENE	10 U
108-05-4	VINYL ACETATE	20 U	100-41-4	ETHYLBENZENE	10 U
75-27-4	BROMODICHLOROMETHANE	10 U	100-42-5	STYRENE	10 U
				TOTAL XYLENES	10 U

DATA REPORTING QUALIFIERS

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >/= 10ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

Page 15.

All semivolatile data is rejected. Holding time before extraction exceeded contractual requirement by 13 days. SG

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SAMPLE NUMBER
[illegible]

SEMIVOLATILE
CONCENTRATION: LOW
DATE EXTRACTED / PREPARED: 2\05\85 (1\21\85 orig.) No documentation
DATE ANALYZED: 2\11\85
CONC/DIL FACTOR: 3.33

CAS NUMBER		ug/l	CAS NUMBER		
62-75-9	N-NITROSODIMETHYLAMINE	33 U	83-32-9	ACENAPHTHENE	[illegible]
108-95-2	PHENOL	33 U	51-28-5	2, 4-DINITROPHENOL	[illegible]
62-53-3	ANILINE	33 U	100-02-7	4-NITROPHENOL	[illegible]
111-44-4	BIS(2-CHLOROETHYL)ETHER	33 U	132-64-9	DIBENZOFURAN	[illegible]
95-57-8	2-CHLOROPHENOL	33 U	121-14-2	2, 4-DINITROTOLUENE	33
541-73-1	1, 3-DICHLOROBENZENE	33 U	606-20-2	2, 6-DINITROTOLUENE	33 U
106-46-7	1, 4-DICHLOROBENZENE	33 U	84-66-2	DIETHYLPHTHALATE	33
100-51-6	BENZYL ALCOHOL	33 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	33
95-50-1	1, 2-DICHLOROBENZENE	33 U	86-73-7	FLUORENE	33 U
95-48-7	2-METHYLPHENOL	33 U	100-01-6	4-NITROANILINE	167 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	33 U	534-52-1	4, 6-DINITRO-2-METHYLPHENOL	[illegible]
106-44-5	4-METHYLPHENOL	33 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	33 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	33 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	33
67-72-1	HEXACHLOROETHANE	33 U	118-74-1	HEXACHLOROBENZENE	33
98-95-3	NITROBENZENE	33 U	87-86-5	PENTACHLOROPHENOL	[illegible]
78-59-1	ISOPHORONE	33 U	85-01-8	PHENANTHRENE	33
88-75-5	2-NITROPHENOL	33 U	120-12-7	ANTHRACENE	33
105-67-9	2, 4-DIMETHYLPHENOL	33 U	84-74-2	DI-N-BUTYLPHTHALATE	33 U
65-85-0	BENZOIC ACID	167 U	206-44-0	FLUORANTHENE	33
111-91-1	BIS(2-CHLOROETHOXY)METHANE	33 U	92-87-5	BENZIDINE	[illegible]
120-83-2	2, 4-DICHLOROPHENOL	33 U	129-00-0	PYRENE	33
120-82-1	1, 2, 4-TRICHLOROBENZENE	33 U	85-68-7	BUTYLBENZYLPHTHALATE	33 U
91-20-3	NAPHTHALENE	33 U	91-94-1	3, 3-DICHLOROBENZIDINE	67
106-47-8	4-CHLOROANILINE	33 U	56-55-3	BENZO(A)ANTHRACENE	33
87-68-3	HEXACHLOROBUTADIENE	33 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	33 U
59-50-7	4-CHLORO-3-METHYLPHENOL	33 U	218-01-9	CHRYSENE	33 U
91-57-6	2-METHYLNAPHTHALENE	33 U	117-84-0	DI-N-OCTYL PHTHALATE	33
77-47-4	HEXACHLOROCYCLOPENTADIENE	33 U	205-99-2	BENZO(B)FLUORANTHENE	33 U
88-06-2	2, 4, 6-TRICHLOROPHENOL	33 U	207-08-9	BENZO(K)FLUORANTHENE	33 U
95-95-4	2, 4, 5-TRICHLOROPHENOL	167 U	50-32-8	BENZO(A)PYRENE	33
91-58-7	2-CHLORONAPHTHALENE	33 U	193-39-5	INDENO(1, 2, 3-CD)PYRENE	33
88-74-4	2-NITROANILINE	167 U	53-70-3	DIBENZ(A, H)ANTHRACENE	33
131-11-3	DIMETHYL PHTHALATE	33 U	191-24-2	BENZO(G, H, I)PERYLENE	33 U
208-96-8	ACENAPHTHYLENE	33 U			
99-09-2	3-NITROANILINE	167 U			

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA464

ORGANICS ANALYSIS DATA SHEET
(PAGE 3)

PESTICIDE/PCBS

CONCENTRATION: LOW LIQUID
DATE EXTRACTED / PREPARED: 1\25\85
DATE ANALYZED: 1\26\85
CONC/DIL FACTOR: 1

CAS NUMBER		
319-84-6	ALPHA-BHC	0.05 U
319-85-7	BETA-BHC	0.05 U
319-86-8	DELTA-BHC	0.05 U
58-89-9	GAMMA-BHC (LINDANE)	0.05 U
76-44-8	HEPTACHLOR	0.05 U
309-00-2	ALDRIN	0.05 U
1024-57-3	HEPTACHLOR EPOXIDE	0.05 U
959-98-8	ENDOSULFAN I	0.05 U
60-57-1	DIELDRIN	0.10 U
72-55-9	4, 4-DDE	0.10 U
72-20-8	ENDRIN	0.10 U
33213-65-9	ENDOSULFAN II	0.10 U
72-54-8	4, 4-DDD	0.10 U
7421-93-4	ENDRIN ALDEHYDE	0.10 U
1031-07-8	ENDOSULFAN SULFATE	0.10 U
50-29-3	4, 4-DDT	0.10 U
72-43-5	METHOXYCHLOR	0.50 U
53494-70-5	ENDRIN KETONE	0.10 U
57-74-9	CHLORDANE	0.50 U
8001-35-2	TOXAPHENE	1.00 U
12674-11-2	AROCLOR-1016	0.50 U
11104-28-2	AROCLOR-1221	0.50 U
11141-16-5	AROCLOR-1232	0.50 U
53469-21-9	AROCLOR-1242	0.50 U
12672-29-6	AROCLOR-1248	0.50 U
11097-69-1	AROCLOR-1254	1.00 U
11096-82-5	AROCLOR-1260	1.00 U

VI = VOLUMN OF EXTRACT INJECTED (UL)
VS = VOLUMN OF WATER EXTRACTED (ML)
WS = WEIGHT OF SAMPLE EXTRACTED (G)
VT = VOLUMN OF TOTAL EXTRACT (UL)

VS: 1000 OR WS: VT: 10,000 VI: 1

RONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA465

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

LABORATORY NAME: COMPUCHEM
LAB SAMPLE ID NO: CJ840592A12
SAMPLE MATRIX: VOA LOW LIQUID
DATA RELEASE
AUTHORIZED BY:

CASE: 3805
QC REPORT NO: ____________
CONTRACT NO: 68\01\7017
DATE SAMPLE
RECEIVED: 1\18\85

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 1\23\85
DATE ANALYZED: 1\23\85
CONC/DIL FACTOR: 1 PH: N\A
PERCENT MOISTURE: N\A
PERCENT MOISTURE (DECANTED):

CAS NUMBER		ug/l	CAS NUMBER		ug/l
74-87-3	CHLOROMETHANE	10 U	79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5 U
74-83-9	BROMOMETHANE	10 U	78-87-5	1, 2-DICHLOROPROPANE	5 U
75-01-4	VINYL CHLORIDE	10 U	10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5 U
75-00-3	CHLOROETHANE	10 U	79-01-6	TRICHLOROETHENE	~~6~~ 5U
75-09-2	METHYLENE CHLORIDE	~~7~~	124-48-1	DIBROMOCHLOROMETHANE	5 U
67-64-1	ACETONE	~~16~~	79-00-5	1, 1, 2-TRICHLOROETHANE	5 U
75-15-0	CARBON DISULFIDE	5 U	71-43-2	BENZENE	5 U
75-35-4	1, 1-DICHLOROETHENE	5 U	10061-01-5	CIS-1, 3-DICHLOROPROPENE	5 U
75-34-3	1, 1-DICHLOROETHANE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
156-60-5	TRANS-1, 2-DICHLOROETHENE	10	75-25-2	BROMOFORM	5 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	~~140~~ 10U
107-06-2	1, 2-DICHLOROETHANE	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
78-93-3	2-BUTANONE	10 U	127-18-4	TETRACHLOROETHENE	5 U
71-55-6	1, 1, 1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5 U
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	~~34~~ 10U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

DATA REPORTING QUALIFIERS

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >/= 10ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SAMPLE NUMBER
BA465

SEMIVOLATILE
CONCENTRATION: LOW
DATE EXTRACTED / PREPARED: 1\21\85
DATE ANALYZED: 1\31\85
CONC/DIL FACTOR: 2.00

CAS NUMBER		ug/l
62-75-9	N-NITRSODIMETHYLAMINE	20 U
108-95-2	PHENOL	~~20 U~~
62-53-3	ANILINE	20 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	20 U
95-57-8	2-CHLOROPHENOL	~~20 U~~
541-73-1	1, 3-DICHLOROBENZENE	20 U
106-46-7	1, 4-DICHLOROBENZENE	20 U
100-51-6	BENZYL ALCOHOL	20 U
95-50-1	1, 2-DICHLOROBENZENE	20 U
95-48-7	2-METHYLPHENOL	~~20 U~~
39638-32-9	BIS(2-CHLOROISOPROPY)ETHER	20 U
106-44-5	4-METHYLPHENOL	~~20 U~~
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20 U
67-72-1	HEXACHLOROETHANE	20 U
98-95-3	NITROBENZENE	20 U
78-59-1	ISOPHORONE	20 U
88-75-5	2-NITROPHENOL	~~20 U~~
105-67-9	2, 4-DIMETHYLPHENOL	~~20 U~~
65-85-0	BENZOIC ACID	~~100~~ U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	20 U
120-83-2	2, 4-DICHLOROPHENOL	~~20 U~~
120-82-1	1, 2, 4-TRICHLOROBENZENE	20 U
91-20-3	NAPHTHALENE	20 U
106-47-8	4-CHLOROANILINE	20 U
87-68-3	HEXACHLOROBUTADIENE	20 U
59-50-7	4-CHLORO-3-METHYLPHENOL	~~20 U~~
91-57-6	2-METHYLNAPHTHALENE	20 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	20 U
88-06-2	2, 4, 6-TRICHLOROPHENOL	~~20 U~~
95-95-4	2, 4, 5-TRICHLOROPHENOL	~~100 U~~
91-58-7	2-CHLORONAPHTHALENE	20 U
88-74-4	2-NITROANILINE	100 U
131-11-3	DIMETHYL PHTHALATE	20 U
208-96-8	ACENAPHTHYLENE	20 U
99-09-2	3-NITROANILINE	100 U

CAS NUMBER		ug/l
83-32-9	ACENAPHTHENE	20 U
51-28-5	2, 4-DINITROPHENOL	~~100 U~~
100-02-7	4-NITROPHENOL	~~100~~ U
132-64-9	DIBENZOFURAN	20 U
121-14-2	2, 4-DINITROTOLUENE	20 U
606-20-2	2, 6-DINITROTOLUENE	20 U
84-66-2	DIETHYLPHTHALATE	20 U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20 U
86-73-7	FLUORENE	20 U
100-01-6	4-NITROANILINE	100 U
534-52-1	4, 6-DINITRO-2-METHYLPHENOL	~~100~~ U
86-30-6	N-NITROSODIPHENYLAMINE (1)	20 U
101-55-3	4-BROMOPHENYL-PHENYLETHER	20 U
118-74-1	HEXACHLOROBENZENE	20 U
87-86-5	PENTACHLOROPHENOL	100 U
85-01-8	PHENANTHRENE	20 U
120-12-7	ANTHRACENE	20 U
84-74-2	DI-N-BUTYLPHTHALATE	20 U
206-44-0	FLUORANTHENE	20 U
92-87-5	BENZIDINE	100 U
129-00-0	PYRENE	20 U
85-68-7	BUTYLBENZYLPHTHALATE	20 U
91-94-1	3, 3-DICHLOROBENZIDINE	40 U
56-55-3	BENZO(A)ANTHRACENE	20 U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	20 U
218-01-9	CHRYSENE	20 U
117-84-0	DI-N-OCTYL PHTHALATE	20 U
205-99-2	BENZO(B)FLUORANTHENE	20 U
207-08-9	BENZO(K)FLUORANTHENE	20 U
50-32-8	BENZO(A)PYRENE	20 U
193-39-5	INDENO(1, 2, 3-CD)PYRENE	20 U
53-70-3	DIBENZ(A, H)ANTHRACENE	20 U
191-24-2	BENZO(G, H, I)PERYLENE	20 U

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

Page 19

All semivolatile data ... holding time before extraction exceeded contractual requirement. Original extraction (1/21/85) is not documented

SG

ONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
BOX 818, ALEXANDRIA, VA 22313 703/557-2490

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SAMPLE NUMBER
BA465 RE

SEMIVOLATILE
CONCENTRATION: LOW
DATE EXTRACTED / PREPARED: 2\05\85 (1\21\85 orig.)
DATE ANALYZED: 2\11\85
CONC/DIL FACTOR: 2.00

CAS NUMBER		ug/l
62-75-9	N-NITRSODIMETHYLAMINE	20 U
108-95-2	PHENOL	20 U
2-53-3	ANILINE	20 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	20 U
5-57-8	2-CHLOROPHENOL	20 U
541-73-1	1, 3-DICHLOROBENZENE	20 U
106-46-7	1, 4-DICHLOROBENZENE	20 U
100-51-6	BENZYL ALCOHOL	20 U
5-50-1	1, 2-DICHLOROBENZENE	20 U
5-46-7	2-METHYLPHENOL	20 U
39638-32-9	BIS(2-CHLOROISOPROPY)ETHER	20 U
06-44-5	4-METHYLPHENOL	20 U
21-64-7	N-NITROSO-DI-N-PROPYLAMINE	20 U
67-72-1	HEXACHLOROETHANE	20 U
8-95-3	NITROBENZENE	20 U
8-59-1	ISOPHORONE	20 U
88-75-5	2-NITROPHENOL	20 U
105-67-9	2, 4-DIMETHYLPHENOL	20 U
5-85-0	BENZOIC ACID	100 U
11-91-1	BIS(2-CHLOROETHOXY)METHANE	20 U
120-83-2	2, 4-DICHLOROPHENOL	20 U
20-82-1	1, 2, 4-TRICHLOROBENZENE	20 U
1-20-3	NAPHTHALENE	20 U
106-47-8	4-CHLOROANILINE	20 U
7-68-3	HEXACHLOROBUTADIENE	20 U
-50-7	4-CHLORO-3-METHYLPHENOL	20 U
91-57-6	2-METHYLNAPHTHALENE	20 U
7-47-4	HEXACHLOROCYCLOPENTADIENE	20 U
-06-2	2, 4, 6-TRICHLOROPHENOL	20 U
-95-4	2, 4, 5-TRICHLOROPHENOL	100 U
91-58-7	2-CHLORONAPHTHALENE	20 U
-74-4	2-NITROANILINE	20 U
1-11-3	DIMETHYL PHTHALATE	100 U
208-96-8	ACENAPHTHYLENE	20 U
-09-2	3-NITROANILINE	100 U

CAS NUMBER		ug/l
83-32-9	ACENAPHTHENE	20 U
51-28-5	2, 4-DINITROPHENOL	100 U
100-02-7	4-NITROPHENOL	100 U
132-64-9	DIBENZOFURAN	20 U
121-14-2	2, 4-DINITROTOLUENE	20 U
606-20-2	2, 6-DINITROTOLUENE	20 U
84-66-2	DIETHYLPHTHALATE	20 U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20 U
86-73-7	FLUORENE	20 U
100-01-6	4-NITROANILINE	100 U
534-52-1	4, 6-DINITRO-2-METHYLPHENOL	100 U
86-30-6	N-NITROSODIPHENYLAMINE (1)	20 U
101-55-3	4-BROMOPHENYL-PHENYLETHER	20 U
118-74-1	HEXACHLOROBENZENE	20 U
87-86-5	PENTACHLOROPHENOL	100 U
85-01-8	PHENANTHRENE	20 U
120-12-7	ANTHRACENE	20 U
84-74-2	DI-N-BUTYLPHTHALATE	20 U
206-44-0	FLUORANTHENE	20 U
92-87-5	BENZIDINE	100 U
129-00-0	PYRENE	20 U
85-68-7	BUTYLBENZYLPHTHALATE	20 U
91-94-1	3, 3-DICHLOROBENZIDINE	40 U
56-55-3	BENZO(A)ANTHRACENE	20 U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	20 U
218-01-9	CHRYSENE	20 U
117-84-0	DI-N-OCTYL PHTHALATE	20 U
205-99-2	BENZO(B)FLUORANTHENE	20 U
207-08-9	BENZO(K)FLUORANTHENE	20 U
50-32-8	BENZO(A)PYRENE	20 U
193-39-5	INDENO(1, 2, 3-CD)PYRENE	20 U
53-70-3	DIBENZ(A, H)ANTHRACENE	20 U
191-24-2	BENZO(G, H, I)PERYLENE	20 U

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA465

ORGANICS ANALYSIS DATA SHEET
(PAGE 3)

PESTICIDE/PCBS

CONCENTRATION: LOW LIQUID
DATE EXTRACTED / PREPARED: 1\25\85
DATE ANALYZED: 1\26\85
CONC/DIL FACTOR: 1

CAS NUMBER		
319-84-6	ALPHA-BHC	0.05 U
319-85-7	BETA-BHC	0.05 U
319-86-8	DELTA-BHC	0.05 U
58-89-9	GAMMA-BHC (LINDANE)	0.05 U
76-44-8	HEPTACHLOR	0.05 U
309-00-2	ALDRIN	0.05 U
1024-57-3	HEPTACHLOR EPOXIDE	0.05 U
959-98-8	ENDOSULFAN I	0.05 U
60-57-1	DIELDRIN	0.10 U
72-55-9	4, 4-DDE	0.10 U
72-20-8	ENDRIN	0.10 U
33213-65-9	ENDOSULFAN II	0.10 U
72-54-8	4, 4-DDD	0.10 U
7421-93-4	ENDRIN ALDEHYDE	0.10 U
1031-07-8	ENDOSULFAN SULFATE	0.10 U
50-29-3	4, 4-DDT	0.10 U
72-43-5	METHOXYCHLOR	0.50 U
53494-70-5	ENDRIN KETONE	0.10 U
57-74-9	CHLORDANE	0.50 U
8001-35-2	TOXAPHENE	1.00 U
12674-11-2	AROCLOR-1016	0.50 U
11104-28-2	AROCLOR-1221	0.50 U
11141-16-5	AROCLOR-1232	0.50 U
53469-21-9	AROCLOR-1242	0.50 U
12672-29-6	AROCLOR-1248	0.50 U
11097-69-1	AROCLOR-1254	1.00 U
11096-82-5	AROCLOR-1260	1.00 U

VI = VOLUMN OF EXTRACT INJECTED (UL)
VS = VOLUMN OF WATER EXTRACTED (ML)
WS = WEIGHT OF SAMPLE EXTRACTED (G)
VT = VOLUMN OF TOTAL EXTRACT (UL)

VS: 1000 OR WS: VT: 10,000 VI: 1

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
64465

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

LABORATORY NAME: COMPUCHEM
LAB SAMPLE ID NO: CR040593B12
SAMPLE MATRIX: VOA LOW LIQUID
DATA RELEASE
AUTHORIZED BY: ____________

CASE: 3805
QC REPORT NO: ____________
CONTRACT NO: 68\01\7017
DATE SAMPLE
RECEIVED: 1\18\85

VOLATILE COMPOUNDS
CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 1\22\85
DATE ANALYZED: 1\22\85
CONC/DIL FACTOR: 2.5 PH: N\A
PERCENT MOISTURE: N\A
PERCENT MOISTURE (DECANTED):

CAS NUMBER		ug/l	CAS NUMBER		ug/l
74-87-3	CHLOROMETHANE	25 U	79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	13 U
74-83-9	BROMOMETHANE	25 U	78-87-5	1, 2-DICHLOROPROPANE	13 U
75-01-4	VINYL CHLORIDE	450	10061-02-4	TRANS-1, 3-DICHLOROPROPENE	13 U
75-00-3	CHLOROETHANE	25 U	79-01-6	TRICHLOROETHENE	13 U
75-09-2	METHYLENE CHLORIDE	190	124-48-1	DIBROMOCHLOROMETHANE	13 U
67-64-1	ACETONE	25 U	79-00-5	1, 1, 2-TRICHLOROETHANE	13 U
75-15-0	CARBON DISULFIDE	13 U	71-43-2	BENZENE	13 U
75-35-4	1, 1-DICHLOROETHENE	13 U	10061-01-5	CIS-1, 3-DICHLOROPROPENE	13 U
75-34-3	1, 1-DICHLOROETHANE	13 U	110-75-8	2-CHLOROETHYLVINYLETHER	25 U
156-60-5	TRANS-1, 2-DICHLOROETHENE	13 U	75-25-2	BROMOFORM	13 U
67-66-3	CHLOROFORM	13 U	591-78-6	2-HEXANONE	25 U
107-06-2	1, 2-DICHLOROETHANE	13 U	108-10-1	4-METHYL-2-PENTANONE	25 U
78-93-3	2-BUTANONE	25 U	127-18-4	TETRACHLOROETHENE	13 J
71-55-6	1, 1, 1-TRICHLOROETHANE	13 U	108-88-3	TOLUENE	13 U
56-23-5	CARBON TETRACHLORIDE	13 U	108-90-7	CHLOROBENZENE	13 U
108-05-4	VINYL ACETATE	25 U	100-41-4	ETHYLBENZENE	13 U
75-27-4	BROMODICHLOROMETHANE	13 U	100-42-5	STYRENE	13 U
				TOTAL XYLENES	13 U

DATA REPORTING QUALIFIERS

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >/= 10ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SAMPLE NUMBER
BA4[illegible]

SEMIVOLATILE
CONCENTRATION: LOW
DATE EXTRACTED / PREPARED: 1\21\85
DATE ANALYZED: 1\31\85
CONC/DIL FACTOR: 2.0

CAS NUMBER		ug/l	CAS NUMBER		ug/l
62-75-9	N-NITROSODIMETHYLAMINE	20 U	83-32-9	ACENAPHTHENE	20 U
108-95-2	PHENOL	20 U	51-28-5	2, 4-DINITROPHENOL	100 U
62-53-3	ANILINE	20 U	100-02-7	4-NITROPHENOL	100 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	20 U	132-64-9	DIBENZOFURAN	20 U
95-57-8	2-CHLOROPHENOL	20 U	121-14-2	2, 4-DINITROTOLUENE	20 U
541-73-1	1, 3-DICHLOROBENZENE	20 U	606-20-2	2, 6-DINITROTOLUENE	20 U
106-46-7	1, 4-DICHLOROBENZENE	20 U	84-66-2	DIETHYLPHTHALATE	20 U
100-51-6	BENZYL ALCOHOL	20 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20 U
95-50-1	1, 2-DICHLOROBENZENE	20 U	86-73-7	FLUORENE	20 U
95-48-7	2-METHYLPHENOL	20 U	100-01-6	4-NITROANILINE	100 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	20 U	534-52-1	4, 6-DINITRO-2-METHYLPHENOL	100 U
106-44-5	4-METHYLPHENOL	20 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	20 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	20 U
67-72-1	HEXACHLOROETHANE	20 U	118-74-1	HEXACHLOROBENZENE	20 U
98-95-3	NITROBENZENE	20 U	87-86-5	PENTACHLOROPHENOL	100 U
78-59-1	ISOPHORONE	20 U	85-01-8	PHENANTHRENE	20 U
88-75-5	2-NITROPHENOL	20 U	120-12-7	ANTHRACENE	20 U
105-67-9	2, 4-DIMETHYLPHENOL	20 U	84-74-2	DI-N-BUTYLPHTHALATE	20 U
65-85-0	BENZOIC ACID	100 U	206-44-0	FLUORANTHENE	20 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	20 U	92-87-5	BENZIDINE	100 U
120-83-2	2, 4-DICHLOROPHENOL	20 U	129-00-0	PYRENE	20 U
120-82-1	1, 2, 4-TRICHLOROBENZENE	20 U	85-68-7	BUTYLBENZYLPHTHALATE	20 U
91-20-3	NAPHTHALENE	20 U	91-94-1	3, 3-DICHLOROBENZIDINE	40 U
106-47-8	4-CHLOROANILINE	20 U	56-55-3	BENZO(A)ANTHRACENE	20 U
87-68-3	HEXACHLOROBUTADIENE	20 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	20 U
59-50-7	4-CHLORO-3-METHYLPHENOL	20 U	218-01-9	CHRYSENE	20 U
91-57-6	2-METHYLNAPHTHALENE	20 U	117-84-0	DI-N-OCTYL PHTHALATE	20 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	20 U	205-99-2	BENZO(B)FLUORANTHENE	20 U
88-06-2	2, 4, 6-TRICHLOROPHENOL	20 U	207-08-9	BENZO(K)FLUORANTHENE	20 U
95-95-4	2, 4, 5-TRICHLOROPHENOL	100 U	50-32-8	BENZO(A)PYRENE	20 U
91-58-7	2-CHLORONAPHTHALENE	20 U	193-39-5	INDENO(1, 2, 3-CD)PYRENE	20 U
88-74-4	2-NITROANILINE	100 U	53-70-3	DIBENZ(A, H)ANTHRACENE	20 U
131-11-3	DIMETHYL PHTHALATE	20 U	191-24-2	BENZO(G, H, I)PERYLENE	20 U
208-96-8	ACENAPHTHYLENE	20 U			
99-09-2	3-NITROANILINE	100 U			

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA466

ORGANICS ANALYSIS DATA SHEET
(PAGE 3)

PESTICIDE/PCBS

CONCENTRATION: LOW LIQUID
DATE EXTRACTED / PREPARED: 1\25\85
DATE ANALYZED: 1\26\85
CONC/DIL FACTOR: 1

CAS NUMBER		
319-84-6	ALPHA-BHC	0.05 U
319-85-7	BETA-BHC	0.05 U
319-86-8	DELTA-BHC	0.05 U
58-89-9	GAMMA-BHC (LINDANE)	0.05 U
76-44-8	HEPTACHLOR	0.05 U
309-00-2	ALDRIN	0.05 U
1024-57-3	HEPTACHLOR EPOXIDE	0.05 U
959-98-8	ENDOSULFAN I	0.05 U
60-57-1	DIELDRIN	0.10 U
72-55-9	4, 4-DDE	0.10 U
72-20-8	ENDRIN	0.10 U
33213-65-9	ENDOSULFAN II	0.10 U
72-54-8	4, 4-DDD	0.10 U
7421-93-4	ENDRIN ALDEHYDE	0.10 U
1031-07-8	ENDOSULFAN SULFATE	0.10 U
50-29-3	4, 4-DDT	0.10 U
72-43-5	METHOXYCHLOR	0.50 U
53494-70-5	ENDRIN KETONE	0.10 U
57-74-9	CHLORDANE	0.50 U
8001-35-2	TOXAPHENE	1.00 U
12674-11-2	AROCLOR-1016	0.50 U
11104-28-2	AROCLOR-1221	0.50 U
11141-16-5	AROCLOR-1232	0.50 U
53469-21-9	AROCLOR-1242	0.50 U
12672-29-6	AROCLOR-1248	0.50 U
11097-69-1	AROCLOR-1254	1.00 U
11096-82-5	AROCLOR-1260	1.00 U

VI = VOLUMN OF EXTRACT INJECTED (UL)
VS = VOLUMN OF WATER EXTRACTED (ML)
WS = WEIGHT OF SAMPLE EXTRACTED (G)
VT = VOLUMN OF TOTAL EXTRACT (UL)

VS: 1000 OR WS: VT: 10,000 VI: 1

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA467

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

LABORATORY NAME: COMPUCHEM
LAB SAMPLE ID NO: CN040594A12
SAMPLE MATRIX: VOA LOW LIQUID
DATA RELEASE
AUTHORIZED BY: JP

CASE: 3605
QC REPORT NO: ____________
CONTRACT NO: 68\01\7017
DATE SAMPLE
RECEIVED: 1\18\85

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 1\22\85
DATE ANALYZED: 1\22\85
CONC/DIL FACTOR: 1 PH: N\A
PERCENT MOISTURE: N\A
PERCENT MOISTURE (DECANTED):

CAS NUMBER		ug/l	CAS NUMBER		ug/l
74-87-3	CHLOROMETHANE	10 U	79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5 U
74-83-9	BROMOMETHANE	10 U	78-87-5	1, 2-DICHLOROPROPANE	5 U
75-01-4	VINYL CHLORIDE	10 U	10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5 U
75-00-3	CHLOROETHANE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-09-2	METHYLENE CHLORIDE	3 J	124-48-1	DIBROMOCHLOROMETHANE	5 U
67-64-1	ACETONE	10 U	79-00-5	1, 1, 2-TRICHLOROETHANE	5 U
75-15-0	CARBON DISULFIDE	5 U	71-43-2	BENZENE	5 U
75-35-4	1, 1-DICHLOROETHENE	5 U	10061-01-5	CIS-1, 3-DICHLOROPROPENE	5 U
75-34-3	1, 1-DICHLOROETHANE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
156-60-5	TRANS-1, 2-DICHLOROETHENE	5 U	75-25-2	BROMOFORM	5 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	10 U
107-06-2	1, 2-DICHLOROETHANE	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
78-93-3	2-BUTANONE	10 U	127-18-4	TETRACHLOROETHENE	5 U
71-55-6	1, 1, 1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	5
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 J
				TOTAL XYLENES	5 U

DATA REPORTING QUALIFIERS

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >/= 10ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SAMPLE NUMBER
[illegible]

SEMIVOLATILE
CONCENTRATION: LOW
DATE EXTRACTED / PREPARED: 2\08\85 (1\21\85 orig.)
DATE ANALYZED: 2\09\85
CONC/DIL FACTOR: 2.0

CAS NUMBER		ug/l	CAS NUMBER		ug/l
62-75-9	N-NITRSODIMETHYLAMINE	20 U	83-32-9	ACENAPHTHENE	20 U
108-95-2	PHENOL	20 U	51-28-5	2, 4-DINITROPHENOL	100 U
62-53-3	ANILINE	20 U	100-02-7	4-NITROPHENOL	100 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	20 U	132-64-9	DIBENZOFURAN	20 U
95-57-8	2-CHLOROPHENOL	20 U	121-14-2	2, 4-DINITROTOLUENE	20 U
541-73-1	1, 3-DICHLOROBENZENE	20 U	606-20-2	2, 6-DINITROTOLUENE	20 U
106-46-7	1, 4-DICHLOROBENZENE	20 U	84-66-2	DIETHYLPHTHALATE	20 U
100-51-6	BENZYL ALCOHOL	20 U	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20 U
95-50-1	1, 2-DICHLOROBENZENE	20 U	86-73-7	FLUORENE	20 U
95-48-7	2-METHYLPHENOL	20 U	100-01-6	4-NITROANILINE	100 U
39638-32-9	BIS(2-CHLOROISOPROPY)ETHER	20 U	534-52-1	4, 6-DINITRO-2-METHYLPHENOL	100 U
106-44-5	4-METHYLPHENOL	20 U	86-30-6	N-NITROSODIPHENYLAMINE (1)	20 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20 U	101-55-3	4-BROMOPHENYL-PHENYLETHER	20 U
67-72-1	HEXACHLOROETHANE	20 U	118-74-1	HEXACHLOROBENZENE	20 U
98-95-3	NITFOBENZENE	20 U	87-86-5	PENTACHLOROPHENOL	100 U
78-59-1	ISOPHORONE	20 U	85-01-8	PHENANTHRENE	20 U
88-75-5	2-NITROPHENOL	20 U	120-12-7	ANTHRACENE	20 U
105-67-9	2, 4-DIMETHYLPHENOL	20 U	84-74-2	DI-N-BUTYLPHTHALATE	20 U
65-85-0	BENZOIC ACID	100 U	206-44-0	FLUORANTHENE	20 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	20 U	92-87-5	BENZIDINE	100 U
120-83-2	2, 4-DICHLOROPHENOL	20 U	129-00-0	PYRENE	20 U
120-82-1	1, 2, 4-TRICHLOROBENZENE	20 U	85-68-7	BUTYLBENZYLPHTHALATE	20 U
91-20-3	NAPHTHALENE	20 U	91-94-1	3, 3-DICHLOROBENZIDINE	40 U
106-47-8	4-CHLOROANILINE	20 U	56-55-3	BENZO(A)ANTHRACENE	20 U
87-68-3	HEXACHLOROBUTADIENE	20 U	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	20 U
59-50-7	4-CHLORO-3-METHYLPHENOL	20 U	218-01-9	CHRYSENE	20 U
91-57-6	2-METHYLNAPHTHALENE	20 U	117-84-0	DI-N-OCTYL PHTHALATE	20 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	20 U	205-99-2	BENZO(B)FLUORANTHENE	20 U
88-06-2	2, 4, 6-TRICHLOROPHENOL	20 U	207-08-9	BENZO(K)FLUORANTHENE	20 U
95-95-4	2, 4, 5-TRICHLOROPHENOL	100 U	50-32-8	BENZO(A)PYRENE	20 U
91-58-7	2-CHLORONAPHTHALENE	20 U	193-39-5	INDENO(1, 2, 3-CD)PYRENE	20 U
88-74-4	2-NITROANILINE	100 U	53-70-3	DIBENZ(A, H)ANTHRACENE	20 U
131-11-3	DIMETHYL PHTHALATE	20 U	191-24-2	BENZO(6, H, I)PERYLENE	20 U
208-96-8	ACENAPHTHYLENE	20 U			
99-09-2	3-NITROANILINE	100 U			

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA467

ORGANICS ANALYSIS DATA SHEET
(PAGE 3)

PESTICIDE/PCBS

CONCENTRATION: LOW LIQUID
DATE EXTRACTED / PREPARED: 1\25\85
DATE ANALYZED: 1\26\85
CONC/DIL FACTOR: 1

CAS NUMBER		
319-84-6	ALPHA-BHC	0.05 U
319-85-7	BETA-BHC	0.05 U
319-86-8	DELTA-BHC	0.05 U
58-89-9	GAMMA-BHC (LINDANE)	0.05 U
76-44-8	HEPTACHLOR	0.05 U
309-00-2	ALDRIN	0.05 U
1024-57-3	HEPTACHLOR EPOXIDE	0.05 U
959-98-8	ENDOSULFAN I	0.05 U
60-57-1	DIELDRIN	0.10 U
72-55-9	4, 4-DDE	0.10 U
72-20-8	ENDRIN	0.10 U
33213-65-9	ENDOSULFAN II	0.10 U
72-54-8	4, 4-DDD	0.10 U
7421-93-4	ENDRIN ALDEHYDE	0.10 U
1031-07-8	ENDOSULFAN SULFATE	0.10 U
50-29-3	4, 4-DDT	0.10 U
72-43-5	METHOXYCHLOR	0.50 U
53494-70-5	ENDRIN KETONE	0.10 U
57-74-9	CHLORDANE	0.50 U
8001-35-2	TOXAPHENE	1.00 U
12674-11-2	AROCLOR-1016	0.50 U
11104-28-2	AROCLOR-1221	0.50 U
11141-16-5	AROCLOR-1232	0.50 U
53469-21-9	AROCLOR-1242	0.50 U
12672-29-6	AROCLOR-1248	0.50 U
11097-69-1	AROCLOR-1254	1.00 U
11096-82-5	AROCLOR-1260	1.00 U

VI = VOLUMN OF EXTRACT INJECTED (UL)
VS = VOLUMN OF WATER EXTRACTED (ML)
WS = WEIGHT OF SAMPLE EXTRACTED (G)
VT = VOLUMN OF TOTAL EXTRACT (UL)

VS: 1000 OR WS: VT: 10,000 VI: 1

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-245

SAMPLE NUMBER
B44[illegible]

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

LABORATORY NAME: COMPUCHEM
LAB SAMPLE ID NO: GH040595A11
SAMPLE MATRIX: VOA LOW SOLID
DATA RELEASE
AUTHORIZED BY: JY

CASE: 3805
QC REPORT NO: [illegible]
CONTRACT NO: 68\01\7017
DATE SAMPLE
RECEIVED: 1\18\85

VOLATILE COMPOUNDS
CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 1\18\85
DATE ANALYZED: 1\23\85
CONC/DIL FACTOR: 1.27 PH:
PERCENT MOISTURE: 22%
PERCENT MOISTURE (DECANTED):

CAS NUMBER		ug/kg	CAS NUMBER		ug/kg
74-87-3	CHLOROMETHANE	13 U	79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	6 U
74-83-9	BROMOMETHANE	13 U	78-87-5	1, 2-DICHLOROPROPANE	6 U
75-01-4	VINYL CHLORIDE	6 J	10061-02-6	TRANS-1, 3-DICHLOROPROPENE	6 U
75-00-3	CHLOROETHANE	13 U	79-01-6	TRICHLOROETHENE	48
75-09-2	METHYLENE CHLORIDE	~~14 B~~	124-48-1	DIBROMOCHLOROMETHANE	6 U
67-64-1	ACETONE	~~25 B~~	79-00-5	1, 1, 2-TRICHLOROETHANE	6 U
75-15-0	CARBON DISULFIDE	6 U	71-43-2	BENZENE	6 U
75-35-4	1, 1-DICHLOROETHENE	6 U	10061-01-5	CIS-1, 3-DICHLOROPROPENE	6 U
[illegible]	1, 1-DICHLOROETHANE	6 U	110-75-8	2-CHLOROETHYLVINYLETHER	13 U
156-60-5	TRANS-1, 2-DICHLOROETHENE	6 U	75-25-2	BROMOFORM	6 U
67-66-3	CHLOROFORM	6 U	591-78-6	2-HEXANONE	13 U
107-06-2	1, 2-DICHLOROETHANE	6 U	108-10-1	4-METHYL-2-PENTANONE	13 U
78-93-3	2-BUTANONE	6 U	127-18-4	TETRACHLOROETHENE	6 U
71-55-6	1, 1, 1-TRICHLOROETHANE	6 U	108-88-3	TOLUENE	6 U
56-23-5	CARBON TETRACHLORIDE	6 U	108-90-7	CHLOROBENZENE	6 U
108-05-4	VINYL ACETATE	13 U	100-41-4	ETHYLBENZENE	6 U
75-27-4	BROMODICHLOROMETHANE	6 U	100-42-5	STYRENE	6 U
				TOTAL XYLENES	6 U

DATA REPORTING QUALIFIERS

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >/= 10ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

Page 28

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX [illegible] ALEXANDRIA, VA [illegible] [illegible]

SAMPLE [illegible]

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: MEDIUM
DATE EXTRACTED / PREPARED: 01\28\85
DATE ANALYZED: 01\31\85
CONC/DIL FACTOR: 2170.0

CAS NUMBER		ug/kg
62-75-9	N-NITROSODIMETHYLAMINE	21700 U
108-95-2	PHENOL	21700 U
62-53-3	ANILINE	21700 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	21700 U
95-57-8	2-CHLOROPHENOL	21700 U
541-73-1	1, 3-DICHLOROBENZENE	21700 U
106-46-7	1, 4-DICHLOROBENZENE	21700 U
100-51-6	BENZYL ALCOHOL	21700 U
95-50-1	1, 2-DICHLOROBENZENE	21700 U
95-48-7	2-METHYLPHENOL	21700 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	21700 U
[illegible]	[illegible]METHYLPHENOL	21700 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21700 U
67-72-1	HEXACHLOROETHANE	21700 U
98-95-3	[illegible]ENE	21700 U
78-59-1	ISOPHORONE	21700 U
88-75-5	2-NITROPHENOL	21700 U
105-67-9	2, 4-DIMETHYLPHENOL	21700 U
65-85-0	BENZOIC ACID	108500 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	21700 U
120-83-2	2, 4-DICHLOROPHENOL	21700 U
120-82-1	1, 2, 4-TRICHLOROBENZENE	21700 U
91-20-3	NAPHTHALENE	21700 U
106-47-8	4-CHLOROANILINE	21700 U
87-68-3	HEXACHLOROBUTADIENE	21700 U
59-50-7	4-CHLORO-3-METHYLPHENOL	21700 U
91-57-6	2-METHYLNAPHTHALENE	21700 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	21700 U
88-06-2	2, 4, 6-TRICHLOROPHENOL	21700 U
95-95-4	2, 4, 5-TRICHLOROPHENOL	108500 U
91-58-7	2-CHLORONAPHTHALENE	21700 U
88-74-4	2-NITROANILINE	108500 U
131-11-3	DIMETHYL PHTHALATE	21700 U
208-96-8	ACENAPHTHYLENE	21700 U
99-09-2	3-NITROANILINE	108500 U

CAS NUMBER		ug/kg
83-32-9	ACENAPHTHENE	21700 U
51-28-5	2, 4-DINITROPHENOL	108500 U
100-02-7	4-NITROPHENOL	108500 U
132-64-9	DIBENZOFURAN	21700 U
121-14-2	2, 4-DINITROTOLUENE	21700 U
606-20-2	2, 6-DINITROTOLUENE	21700 U
84-66-2	DIETHYLPHTHALATE	21700 U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21700 U
86-73-7	FLUORENE	21700 U
100-01-6	4-NITROANILINE	108500 U
534-52-1	4, 6-DINITRO-2-METHYLPHENOL	108500 U
86-30-6	N-NITROSODIPHENYLAMINE (1)	21700 U
101-55-3	4-BROMOPHENYL-PHENYLETHER	[illegible]
118-74-1	HEXACHLOROBENZENE	21700 U
87-86-5	PENTACHLOROPHENOL	108500 U
85-01-8	PHENANTHRENE	21700 U
120-12-7	ANTHRACENE	2170[illegible]
84-74-2	DI-N-BUTYLPHTHALATE	[illegible]
206-44-0	FLUORANTHENE	21700 U
92-87-5	BENZIDINE	108[illegible] U
129-00-0	PYRENE	21700 U
85-68-7	BUTYLBENZYLPHTHALATE	21700 U
91-94-1	3, 3'-DICHLOROBENZIDINE	[illegible]
56-55-3	BENZO(A)ANTHRACENE	21700 U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	[illegible]
218-01-9	CHRYSENE	[illegible]
117-84-0	DI-N-OCTYL PHTHALATE	[illegible]
205-99-2	BENZO(B)FLUORANTHENE	21700
207-08-9	BENZO(K)FLUORANTHENE	[illegible]
50-32-8	BENZO(A)PYRENE	[illegible]
193-39-5	INDENO(1, 2, 3-CD)PYRENE	[illegible]
53-70-3	DIBENZ(A, H)ANTHRACENE	[illegible]
191-24-2	BENZO(G, H, I)PERYLENE	21700 U

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
B4-68

ORGANICS ANALYSIS DATA SHEET
(PAGE 3)

PESTICIDE/PCBS

CONCENTRATION: MEDIUM SOLID
DATE EXTRACTED / PREPARED: 1\24\85
DATE ANALYZED: 1\30\85
CONC/DIL FACTOR: 1.3

CAS NUMBER		
319-84-6	ALPHA-BHC	156.00 U
319-85-7	BETA-BHC	156.00 U
319-86-8	DELTA-BHC	156.00 U
58-89-9	GAMMA-BHC (LINDANE)	156.00 U
76-44-8	HEPTACHLOR	156.00 U
309-00-2	ALDRIN	156.00 U
1024-57-3	HEPTACHLOR EPOXIDE	156.00 U
959-98-8	ENDOSULFAN I	156.00 U
60-57-1	DIELDRIN	312.00 U
72-55-9	4, 4-DDE	312.00 U
72-20-8	ENDRIN	312.00 U
33213-65-9	ENDOSULFAN II	312.00 U
72-54-8	4, 4-DDD	312.00 U
7421-93-4	ENDRIN ALDEHYDE	312.00 U
1031-07-8	ENDOSULFAN SULFATE	312.00 U
50-29-3	4, 4-DDT	312.00 U
72-43-5	METHOXYCHLOR	1560.00 U
53494-70-5	ENDRIN KETONE	312.00 U
57-74-9	CHLORDANE	1560.00 U
8001-35-2	TOXAPHENE	3120.00 U
12674-11-2	AROCLOR-1016	1560.00 U
11104-28-2	AROCLOR-1221	1560.00 U
11141-16-5	AROCLOR-1232	1560.00 U
53469-21-9	AROCLOR-1242	1560.00 U
12672-29-6	AROCLOR-1248	1560.00 U
11097-69-1	AROCLOR-1254	3120.00 U
11096-82-5	AROCLOR-1260	3120.00 U

VI = VOLUME OF EXTRACT INJECTED (UL)
VS = VOLUME OF WATER EXTRACTED (ML)
WS = WEIGHT OF SAMPLE EXTRACTED (G)
VT = VOLUME OF TOTAL EXTRACT (UL)

VS: OR WS: 2 VT: 2000 VI: 5

[illegible] PROTECTION [illegible]
[illegible]

ORGANIC ANALYSIS DATA SHEET
[illegible]

[illegible] NAME: [illegible]
LAB SAMPLE ID NO:
SAMPLE MATRIX: [illegible]
DATA RELEASE
AUTHORIZED BY: JG

CASE [illegible]
QC REPORT NO: _______________
CONTRACT NO: [illegible]
DATE SAMPLE
RECEIVED: 1\16\85

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: SEE QA NOTICE
DATE ANALYZED:
CONC/DIL FACTOR: PH:
PERCENT MOISTURE
PERCENT MOISTURE DECANTED:

CAS NUMBER			CAS NUMBER		
74-87-3	CHLOROMETHANE	~~10 U~~	79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	[illegible]
74-83-9	BROMOMETHANE	~~10 U~~	78-87-5	1, 2-DICHLOROPROPANE	[illegible]
75-01-4	VINYL CHLORIDE	[illegible] U	10061-02-6	TRANS-1, 3-DICHLOROPROPENE	[illegible]
75-00-3	CHLOROETHANE	[illegible] U	79-01-6	TRICHLOROETHENE	[illegible]
75-09-2	METHYLENE CHLORIDE	5 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
67-64-1	ACETONE	10 U	79-00-5	1, 1, 2-TRICHLOROETHANE	[illegible]
75-15-0	CARBON DISULFIDE	5 U	71-43-2	BENZENE	5 U
75-35-4	1, 1-DICHLOROETHENE	5 U	10061-01-5	CIS-1, 3-DICHLOROPROPENE	[illegible]
75-34-3	1, 1-DICHLOROETHANE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
156-60-5	TRANS-1, 2-DICHLOROETHENE	5 U	75-25-2	BROMOFORM	[illegible]
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	[illegible]
107-06-2	1, 2-DICHLOROETHANE	5 J	108-10-1	4-METHYL-2-PENTANONE	10 U
78-93-3	2-BUTANONE	10 U	127-18-4	TETRACHLOROETHENE	[illegible]
71-55-6	1, 1, 1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	[illegible]
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	[illegible]
108-05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	[illegible]
				TOTAL XYLENES	5 U

DATA REPORTING QUALIFIERS

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

VALUE If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >/= 10ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

ENVIRONMENTAL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
P.O. BOX 818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA469

ORGANICS ANALYSIS DATA SHEET
(PAGE 2)

SEMIVOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED / PREPARED: 01\22\85
DATE ANALYZED: 02\21\85
CONC/DIL FACTOR: 1090.0

CAS NUMBER		ug/kg
62-75-9	N-NITROSODIMETHYLAMINE	10900 U
108-95-2	PHENOL	10900 U
62-53-3	ANILINE	10900 U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10900 U
95-57-8	2-CHLOROPHENOL	10900 U
541-73-1	1, 3-DICHLOROBENZENE	10900 U
106-46-7	1, 4-DICHLOROBENZENE	10900 U
100-51-6	BENZYL ALCOHOL	10900 U
95-50-1	1, 2-DICHLOROBENZENE	10900 U
95-48-7	2-METHYLPHENOL	10900 U
39638-32-9	BIS(2-CHLOROISOPROPYL)ETHER	10900 U
106-44-5	4-METHYLPHENOL	10900 U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10900 U
67-72-1	HEXACHLOROETHANE	10900 U
98-95-3	NITROBENZENE	10900 U
78-59-1	ISOPHORONE	10900 U
88-75-5	2-NITROPHENOL	10900 U
105-67-9	2, 4-DIMETHYLPHENOL	10900 U
65-85-0	BENZOIC ACID	54500 U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10900 U
120-83-2	2, 4-DICHLOROPHENOL	10900 U
120-82-1	1, 2, 4-TRICHLOROBENZENE	10900 U
91-20-3	NAPHTHALENE	10900 U
106-47-8	4-CHLOROANILINE	10900 U
87-68-3	HEXACHLOROBUTADIENE	10900 U
59-50-7	4-CHLORO-3-METHYLPHENOL	10900 U
91-57-6	2-METHYLNAPHTHALENE	10900 U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10900 U
88-06-2	2, 4, 6-TRICHLOROPHENOL	10900 U
95-95-4	2, 4, 5-TRICHLOROPHENOL	54500 U
91-58-7	2-CHLORONAPHTHALENE	10900 U
88-74-4	2-NITROANILINE	54500 U
131-11-3	DIMETHYL PHTHALATE	10900 U
208-96-8	ACENAPHTHYLENE	10900 U
99-09-2	3-NITROANILINE	54500 U

CAS NUMBER		ug/kg
83-32-9	ACENAPHTHENE	10900 U
51-28-5	2, 4-DINITROPHENOL	54500 U
100-02-7	4-NITROPHENOL	54500 U
132-64-9	DIBENZOFURAN	10900 U
121-14-2	2, 4-DINITROTOLUENE	10900 U
606-20-2	2, 6-DINITROTOLUENE	10900 U
84-66-2	DIETHYLPHTHALATE	10900 U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10900 U
86-73-7	FLUORENE	10900 U
100-01-6	4-NITROANILINE	54500 U
534-52-1	4, 6-DINITRO-2-METHYLPHENOL	54500 U
86-30-6	N-NITROSODIPHENYLAMINE (1)	10900 U
101-55-3	4-BROMOPHENYL-PHENYLETHER	10900 U
118-74-1	HEXACHLOROBENZENE	10900 U
87-86-5	PENTACHLOROPHENOL	54500 U
85-01-8	PHENANTHRENE	10900 U
120-12-7	ANTHRACENE	10900 U
84-74-2	DI-N-BUTYLPHTHALATE	10900 U
206-44-0	FLUORANTHENE	10900 U
92-87-5	BENZIDINE	54500 U
129-00-0	PYRENE	10900 U
85-68-7	BUTYLBENZYLPHTHALATE	10900 U
91-94-1	3, 3-DICHLOROBENZIDINE	21800 U
56-55-3	BENZO(A)ANTHRACENE	10900 U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10900 U
218-01-9	CHRYSENE	10900 U
117-84-0	DI-N-OCTYL PHTHALATE	10900 U
205-99-2	BENZO(B)FLUORANTHENE	10900 U
207-08-9	BENZO(K)FLUORANTHENE	10900 U
50-32-8	BENZO(A)PYRENE	10900 U
193-39-5	INDENO(1, 2, 3-CD)PYRENE	10900 U
53-70-3	DIBENZ(A, H)ANTHRACENE	10900 U
191-24-2	BENZO(G, H, I)PERYLENE	10900 U

(1)-CANNOT BE SEPARATED FROM DIPHENYLAMINE

[illegible] CLP SAMPLE MANAGEMENT OFFICE
[illegible] VA [illegible]

SAMPLE NUMBER
84466

ORGANICS ANALYSIS DATA SHEET
(PAGE 3)

PESTICIDE/PCBS

CONCENTRATION: MEDIUM SOLID
DATE EXTRACTED /
PREPARED: 1\24\85
DATE ANALYZED: 1\30\85
CONC/DIL FACTOR: 2.4

CAS NUMBER		
319-84-6	ALPHA-BHC	288.00 U
319-85-7	BETA-BHC	288.00 U
319-86-8	DELTA-BHC	288.00 U
58-89-9	GAMMA-BHC (LINDANE)	288.00 U
76-44-8	HEPTACHLOR	288.00 U
309-00-2	ALDRIN	288.00 U
1024-57-3	HEPTACHLOR EPOXIDE	288.00 U
959-98-8	ENDOSULFAN I	288.00 U
60-57-1	DIELDRIN	576.00 U
72-55-9	4, 4-DDE	576.00 U
72-20-8	ENDRIN	576.00 U
33213-65-9	ENDOSULFAN II	576.00 U
72-54-8	4, 4-DDD	576.00 U
7421-93-4	ENDRIN ALDEHYDE	576.00 U
1031-07-8	ENDOSULFAN SULFATE	576.00 U
50-29-3	4, 4-DDT	576.00 U
72-43-5	METHOXYCHLOR	2880.00 U
53494-70-5	ENDRIN KETONE	576.00 U
57-74-9	CHLORDANE	2880.00 U
8001-35-2	TOXAPHENE	5760.00 U
12674-11-2	AROCLOR-1016	2880.00 U
11104-28-2	AROCLOR-1221	2880.00 U
11141-16-5	AROCLOR-1232	2880.00 U
53469-21-9	AROCLOR-1242	2880.00 U
12672-29-6	AROCLOR-1248	2880.00 U
11097-69-1	AROCLOR-1254	5760.00 U
11096-82-5	AROCLOR-1260	5760.00 U

VI = VOLUMN OF EXTRACT INJECTED (UL)
VS = VOLUMN OF WATER EXTRACTED (ML)
WS = WEIGHT OF SAMPLE EXTRACTED (G)
VT = VOLUMN OF TOTAL EXTRACT (UL)

VS: CR WS: 1 VT: 2000 VI: 5

AL PROTECTION AGENCY, CLP SAMPLE MANAGEMENT OFFICE
818, ALEXANDRIA, VA 22313 703/557-2490

SAMPLE NUMBER
BA470

ORGANICS ANALYSIS DATA SHEET
(PAGE 1)

ORY NAME: COMPUCHEM
PLE ID NO: CN040608A12
MATRIX: VOA LOW LIQUID
LEASE
ZED BY: ____________

CASE: 3805
QC REPORT NO: ______________
CONTRACT NO: 68\01\7017
DATE SAMPLE
RECEIVED: 1\18\85

VOLATILE COMPOUNDS

CONCENTRATION: LOW
DATE EXTRACTED/PREPARED: 1\22\85
DATE ANALYZED: 1\22\85
CONC/DIL FACTOR: 1 PH: N\A
PERCENT MOISTURE: N\A
PERCENT MOISTURE (DECANTED):

CAS NUMBER		ug/l	CAS NUMBER		ug/l
74-87-3	CHLOROMETHANE	10 U	79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	5 U
7 -83-9	BROMOMETHANE	10 U	78-87-5	1, 2-DICHLOROPROPANE	5 U
75-01-4	VINYL CHLORIDE	10 U	10061-02-6	TRANS-1, 3-DICHLOROPROPENE	5 U
75-00-3	CHLOROETHANE	10 U	79-01-6	TRICHLOROETHENE	5 U
75-09-2	METHYLENE CHLORIDE	5 U	124-48-1	DIBROMOCHLOROMETHANE	5 U
67- 4-1	ACETONE	10 U	79-00-5	1, 1, 2-TRICHLOROETHANE	5 U
75-15-0	CARBON DISULFIDE	5 U	71-43-2	BENZENE	5 U
75-35-4	1, 1-DICHLOROETHENE	5 U	10061-01-5	CIS-1, 3-DICHLOROPROPENE	5 U
75-34-3	1, 1-DICHLOROETHANE	5 U	110-75-8	2-CHLOROETHYLVINYLETHER	10 U
156-60-5	TRANS-1, 2-DICHLOROETHENE	5 U	75-25-2	BROMOFORM	5 U
67-66-3	CHLOROFORM	5 U	591-78-6	2-HEXANONE	10 U
10 -06-2	1, 2-DICHLOROETHANE	5 U	108-10-1	4-METHYL-2-PENTANONE	10 U
78-93-3	2-BUTANONE	10 U	127-18-4	TETRACHLOROETHENE	5 U
71-55-6	1, 1, 1-TRICHLOROETHANE	5 U	108-88-3	TOLUENE	9
56-23-5	CARBON TETRACHLORIDE	5 U	108-90-7	CHLOROBENZENE	5 U
10 -05-4	VINYL ACETATE	10 U	100-41-4	ETHYLBENZENE	5 U
75-27-4	BROMODICHLOROMETHANE	5 U	100-42-5	STYRENE	5 U
				TOTAL XYLENES	5 U

DATA REPORTING QUALIFIERS

porting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

f the result is a value greater than or equal to the detection limit, report the value.

ndicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with he U (e.g. 10U) based on necessary concentration/ ilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the inimum attainable detection limit for the sample.

Indicates an estimated value. This flag is used either hen estimating a concentration for tentatively identified ompounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that eets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >/= 10ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/ probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

2.

3.

ATTACHMENT 2

CHECKLIST FOR VALIDATING HAZARDOUS WASTE SITE DATA
(GC/MS ORGANIC ANALYSIS)

I. Surveillance and Monitoring Branch Review

Project Name/Site: Tenneco

Contract No.: 68-01-7017 Lab: Compuchem Case No. 3805

Sample Identification Numbers: BA462 - BA470

Superfund Acct. # 5TFA02PJZZ

1. Samples are representative: YES ___ NO ___ N/A ___

2. The data are complete: YES ___ NO ___

acids ___

base/neutrals ___

volatiles (VOA) ___

pesticides ___

PCB's ___

3. Conclusions:

Reviewer's Signature Date

II. Monitoring Management Branch Review

1. EPA approval method: YES ✓ NO ___ Identify Method: IFB methods

2. BFB spectrum, compariason meets specifications: YES ✓ NO ___

3. DFTP spectrum comparison meets specficiations: YES ✓ NO ___

4. Standard run appearance is satisfactory:

   acid fraction Yes

   base/neutral fraction Yes

   volatiles (VOA) fraction Yes

   pesticide fraction Yes

   PCB fraction Yes

5. Blank runs satisfactory:

   surrogate standard recoveries All are within QC limits

   presence of contaminants methylene chloride 2.5J

   method blank For Soils: Methylene Chloride 15ug/Kg, Acetone 12ug/Kg
   Toluene 660J, bis(2-ethylhexyl phthalate 210ug/kg

   field blank Toluene 8ug/L (soils)
   Methylene Chloride 3J., Toluene 9ug/L (water)

6. Precision (duplicate lab analysis) within accepted limits:

   acid fraction 1 out of 10; outside QC limits

   base/neutral fraction 3 out of 14; outside QC limits

   volatile (VOA) fraction 2 out of 10; outside QC limits

   pesticide fraction 1 out of 12; outside QC limits

   PCB ~~fraction~~ ___

7. Accuracy (matrix spike) within accepted limits:

acid fraction 8 out of 20; outside QC limits

base/neutral 4 out of 28; outside QC limits

volatile (VOA) fraction 2 out of 20; outside QC limits

pesticides/PCBs 4 out of 24; outside QC limits

8. Sample surrogate spike recoveries within accepted limits:

acid fraction 19 out of 81; outside QC limits

base/neutral Ø out of 81; outside QC limits

volatile (VOA) fraction Ø out of 66; outside QC limits

~~TCDD~~ Pesticides: 3 out of 16; outside QC limits

9. Priority pollutant identification satisfactory:

acid fraction None was found

base/neutral OK

volatile (VOA) fraction OK

pesticide fraction None was found

PCB fraction None was found

10. Conclusions: (Reviewer must line out unacceptable data on sample data sheets)

The data of this package is valid and acceptable except for the values which are marked as "rejected".

For sample BA469 all volatile and semivolatile data is rejected. Surrogate recoveries for all fractions are missing. Moreover the reconstructed ion chromatogram and the data system printout for the volatile fraction is missing.

For samples BA462, BA463 and BA465 all

(Conti

Reviewer's Signature

Date

NOTE: Rejected (red-lined) data does not imply the compound is not present.

Reviewer's Comments (cont'd)

"not detected" values for the acid fraction were red-lined (rejected). Again no surrogate recoveries are reported.

All semivolatile data for sample BA464 and all semivolatile data for the repeat analysis for samples BA462, BA463 and BA465 was rejected because the holding time before extraction exceeded contractual requirements.

Stelios Gerazounis
5/9/85

Val. 5/13/85

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date [illegible]

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name ROCKY MOUNTAIN ANALYTICAL
SOW No. 784

Case No. 3605
QC Report No. [illegible]

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MBA775			
MBA778			
MBA774			
MBA776			
MBA777			
MBA779			

Comments: Tasks 1 and 2 only

ICP Interelement and background corrections applied? Yes X No ___.
If yes, corrections applied before X or after ___ generation of raw data.

Footnotes:
NR - not required by contract at this time
Form I:
Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the method used with P (for ICP/Flame AA) or F (for furnace).
U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10U).
E - Indicates a value estimated or not reported due to the presence of Interference. Explanatory note included on cover page.
S - Indicates value determined by Method of Standard Addition.
R - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is Less than 0.995
CV - Indicates Cold Vapor
MS - Indicates Manual Spectrophotometric

Q.C. Report No. 5612
INSTRUMENT DETECTION LIMITS AND
LABORATORY CONTROL SAMPLE

LAB NAME ROCKY MOUNTAIN ANALYTICAL
DATE 02/25/85

CASE NO 3805
UNITS ug/L

Compound	Required Detection Limits (CRDL)-ug/l	Instrument Detection Limits (IDL)-ug/l ICP/AA	Furnace	Lab Control Sample True	Found	%R
Metals:						
1. ALUMINUM	200	35		500	494	99
2. ANTIMONY	60	51		500	519	104
3. ARSENIC	10		3	53	49	92
4. BARIUM	200	12		500	456	91
5. BERYLLIUM	5	0.6		100	91	91
6. CADMIUM	5	5		100	98	98
7. CALCIUM	5000	330		100000	102000	102
8. CHROMIUM	10	4		100	~~95~~ 92	~~95~~ 92
9. COBALT	50	6		100	94	94
10. COPPER	25	5		100	98	98
11. IRON	100	10		500	454	91
12. LEAD	5	21	2	500	441	88
13. MAGNESIUM	5000	390		100000	98700	99
14. MANGANESE	15	4		100	88	88
15. MERCURY	0.2		.10CV	1.00	1.04	104
16. NICKEL	40	7		100	99	99
17. POTASSIUM	5000	1200		100000	101000	101
18. SELENIUM	5		2	38	36	95
19. SILVER	10	5		100	102	102
20. SODIUM	5000	720		100000	98300	98
21. THALLIUM	10		6	50	46	92
22. TIN	40	28		500	464	93
23. VANADIUM	50	5		100	90	90
24. ZINC	20	3		100	100	100
Other:						
Cyanide	10		10MS	NR		

CV - Cold Vapor
MS - Manual Spectrophotometer

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MBA774

Date 03/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 3805
QC REPORT NO. 5612

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

ug/L

1.	ALUMINUM	133000	P		13.	MAGNESIUM	73100	P	
2.	ANTIMONY	159	P	R	14.	MANGANESE	13800	P	
3.	ARSENIC	100u	F		15.	MERCURY	0.27	CV	
4.	BARIUM	655	P		16.	NICKEL	464	P	
5.	BERYLLIUM	20	P		17.	POTASSIUM	33400	P	
6.	CADMIUM	38	P	R	18.	SELENIUM	5u	F	R
7.	CALCIUM	106000	P		19.	SILVER	46	P	
8.	CHROMIUM	480	P		20.	SODIUM	18900	P	
9.	COBALT	285	P		21.	THALLIUM	10u	F	R
10.	COPPER	489	P		22.	TIN	56U	P	
11.	IRON	681000	P		23.	VANADIUM	918	P	
12.	LEAD	280	P	R	24.	ZINC	859	P	

Cyanide NR Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Sample MBA774 analyzed for ICP at a 1:2 dilution due to high Fe concentration. KKO

Lab Manager ____

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No. MBA775

Date 02/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 3805
QC REPORT NO. 3612

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

ug/L

1.	ALUMINUM	5150	P	13.	MAGNESIUM	43500	P
2.	ANTIMONY	51U	P R	14.	MANGANESE	3340	P
3.	ARSENIC	[6.0]	F	15.	MERCURY	0.1u	CV
4.	BARIUM	[86]	P	16.	NICKEL	95	P
5.	BERYLLIUM	0.6U	P	17.	POTASSIUM	[4680]	P
6.	CADMIUM	5U	P R	18.	SELENIUM	5u	F R
7.	CALCIUM	57300	P	19.	SILVER	5U	P
8.	CHROMIUM	44	P	20.	SODIUM	30600	P
9.	COBALT	241	P	21.	THALLIUM	10u	F R
10.	COPPER	73	P	22.	TIN	28U	P
11.	IRON	19800	P	23.	VANADIUM	[24]	P
12.	LEAD	20	F R	24.	ZINC	72	P

Cyanide NR
Percent Solids (%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MBA776

Date 02/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 3805
QC REPORT NO. 5612

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

ug/L

1.	ALUMINUM	47700	P		13.	MAGNESIUM	50900	P	
2.	ANTIMONY	89	P	R	14.	MANGANESE	18100	P	
3.	ARSENIC	28	F		15.	MERCURY	0.27	CV	
4.	BARIUM	427	P		16.	NICKEL	619	P	
5.	BERYLLIUM	[4]	P		17.	POTASSIUM	15100	P	
6.	CADMIUM	17	P	R	18.	SELENIUM	50u	F	R
7.	CALCIUM	78900	P		19.	SILVER	18	P	
8.	CHROMIUM	255	P		20.	SODIUM	32000	P	
9.	COBALT	1800	P		21.	THALLIUM	10u	F	R
10.	COPPER	139	P		22.	TIN	28U	P	
11.	IRON	270000	P		23.	VANADIUM	193	P	
12.	LEAD	96	P	R	24.	ZINC	474	P	

Cyanide NR   Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MBA777

Date 02/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 3805
QC REPORT NO: 5612

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

ug/L

1.	ALUMINUM	54600	P	13.	MAGNESIUM	21000	P
2.	ANTIMONY	148	P R	14.	MANGANESE	4180	P
3.	ARSENIC	14	F	15.	MERCURY	0.1u	CV
4.	BARIUM	290	P	16.	NICKEL	233	P
5.	BERYLLIUM	[4.8]	P	17.	POTASSIUM	19500	P
6.	CADMIUM	31	P R	18.	SELENIUM	E	F R
7.	CALCIUM	24000	P	19.	SILVER	29	P
8.	CHROMIUM	316	P	20.	SODIUM	38400	P
9.	COBALT	116	P	21.	THALLIUM	100u	F R
10.	COPPER	292	P	22.	TIN	28U	P
11.	IRON	399000	P	23.	VANADIUM	352	P
12.	LEAD	282	P R	24.	ZINC	464	P

Cyanide NR   Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager [signature]

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MBA??

Date 02/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 3805
QC REPORT NO. 5612

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

ug/L

1.	ALUMINUM	500	P	13.	MAGNESIUM	[3770]	P
2.	ANTIMONY	51U	P R	14.	MANGANESE	90	P
3.	ARSENIC	10u	F	15.	MERCURY	0.1u	CV
4.	BARIUM	12U	P	16.	NICKEL	[21]	P
5.	BERYLLIUM	0.6U	P	17.	POTASSIUM	5980	P
6.	CADMIUM	5U	P R	18.	SELENIUM	5u	F R
7.	CALCIUM	48100	P	19.	SILVER	5U	P
8.	CHROMIUM	[4.8]	P	20.	SODIUM	153000	P
9.	COBALT	6U	P	21.	THALLIUM	10u	F R
10.	COPPER	43	P	22.	TIN	28U	P
11.	IRON	2260	P	23.	VANADIUM	5U	P
12.	LEAD	5u	F R	24.	ZINC	31	P

Cyanide NR

Percent Solids (%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No. M3A77

Date 02/25/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 3805
QC REPORT NO. 5612

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water X Soil ____ Sludge ____ Other ____

ug/L

1.	ALUMINUM	[36]	P		13.	MAGNESIUM	390U	P	
2.	ANTIMONY	51U	P	R	14.	MANGANESE	4U	P	
3.	ARSENIC	3u	F		15.	MERCURY	0.1u	CV	
4.	BARIUM	12U	P		16.	NICKEL	7U	P	
5.	BERYLLIUM	0.6U	P		17.	POTASSIUM	1200U	P	
6.	CADMIUM	5U	P	R	18.	SELENIUM	5u	F	R
7.	CALCIUM	330U	P		19.	SILVER	5U	P	
8.	CHROMIUM	4U	P		20.	SODIUM	720U	P	
9.	COBALT	6U	P		21.	THALLIUM	10u	F	R
10.	COPPER	5U	P		22.	TIN	28U	P	
11.	IRON	[49]	P		23.	VANADIUM	5U	P	
12.	LEAD	2u	F	R	24.	ZINC	[4.1]	P	

Cyanide NR Percent Solids (%) ____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager ____

[illegible] Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
[illegible] 557-2490 FTS: 8-557-2490

Date 2/27/85

COVER PAGE
INORGANIC ANALYSIS DATA PACKAGE

Lab Name ROCKY MOUNTAIN ANALYTICAL   Case No. 3805
SOW No. 784   QC Report No. 74123

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MBA780			
MBA781			
MBA782			

Comments: TASKS 1 AND 2 ONLY   Low Soils

ICP Interelement and background corrections applied? Yes X No ___.
If yes, corrections applied before X or after ___ generation of raw data.

Footnotes:

NR - not required by contract at this time

Form I:

Value - If the result is a value greater than or equal to the instrument detection limit but less than the contract required detection limit, report the value in brackets (i.e., [10]). Indicate the method used with P (for ICP/Flame AA) or F (for furnace).

U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10U).

E - Indicates a value estimated or not reported due to the presence of Interference. Explanatory note included on cover page.

S - Indicates value determined by Method of Standard Addition.

R - Indicates spike sample recovery is not within control limits.

* - Indicates duplicate analysis is not within control limits.

+ - Indicates the correlation coefficient for method of standard addition is Less than 0.995

CV - Indicates Cold Vapor

MS - Indicates Manual Spectrophotometric

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date 2/27/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 3807
QC REPORT NO. 54125

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	7420	P *	13.	MAGNESIUM	[3190]	P
2.	ANTIMONY	39	P R	14.	MANGANESE	161	P *
3.	ARSENIC	[5.4]	F	15.	MERCURY	0.064U	CV
4.	BARIUM	[71]	P	16.	NICKEL	[9.3]	P
5.	BERYLLIUM	[0.53]	P	17.	POTASSIUM	3520	P
6.	CADMIUM	3.2U	P	18.	SELENIUM	1.3U	F
7.	CALCIUM	4160	P	19.	SILVER	[3.3]	P
8.	CHROMIUM	~~27~~	P * Jv	20.	SODIUM	~~[1130]~~	~~P~~
9.	COBALT	[12]	P	21.	THALLIUM	3.8U	F
10.	COPPER	~~24~~	P *R Jv	22.	TIN	18U	P
11.	IRON	22900	P *	23.	VANADIUM	32	P
12.	LEAD	~~29~~	P *	24.	ZINC	~~123~~ J	P *R

Cyanide NR Percent Solids (%) 78

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Al rejected due to prep blank [illegible]
Zn is [illegible] due to poor spike recovery.
Cr, Cu, Pb, Zn - rejected due to poor duplicate analysis

Lab Manager [signature]

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, [illegible]
703 557-2490 FTS: 8-557-[illegible]

2/27/85

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO.

CASE NO. [illegible]
QC REPORT NO [illegible]

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	5810	P *	13.	MAGNESIUM	[2430]	P
2.	ANTIMONY	30U	P R	14.	MANGANESE	160	P *
3.	ARSENIC	5.9u	F	15.	MERCURY	0.059u	CV
4.	BARIUM	[53]	P	16.	NICKEL	[12]	P
5.	BERYLLIUM	[0.6]	P	17.	POTASSIUM	[2340]	P
6.	CADMIUM	2.9U	P	18.	SELENIUM	2.9u	F
7.	CALCIUM	[23100]	P	19.	SILVER	2.9U	P
8.	CHROMIUM	20	P *	20.	SODIUM	~~[1060]~~	P
9.	COBALT	[7.2]	P	21.	THALLIUM	3.5U	F
10.	COPPER	17	P *R	22.	TIN	16U	P
11.	IRON	16800	P *	23.	VANADIUM	[20]	P
12.	LEAD	15	F	24.	ZINC	84	P *R

Cyanide NR
Percent Solids (%) 85

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: No reported due to the prep blank contamination

Lab Manager

[illegible]
[illegible] FTS: [illegible]

2/27/85

INORGANIC [illegible]

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. –

CASE NO. [illegible]
QC REPORT NO. [illegible]

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other •

mg/kg dry weight

1.	ALUMINUM	19U	P *	13.	MAGNESIUM	4340	P
2.	ANTIMONY	26U	P F	14.	MANGANESE	2U	P *
3.	ARSENIC	1.5U	F	15.	MERCURY	0.05U	CV
4.	BARIUM	[6.1]	P	16.	NICKEL	3.5U	P
5.	BERYLLIUM	0.3U	P	17.	POTASSIUM	600U	P
6.	CADMIUM	2.5U	P	18.	SELENIUM	1U	F
7.	CALCIUM	19300	P	19.	SILVER	2.5U	P
8.	CHROMIUM	2U	P *	20.	SODIUM	~~[illegible]~~	P
9.	COBALT	3U	P	21.	THALLIUM	3U	F
10.	COPPER	2.5U	P *R	22.	TIN	14U	P
11.	IRON	5U	P *	23.	VANADIUM	2.5U	P
12.	LEAD	1U	F	24.	ZINC	1.5U	P *R

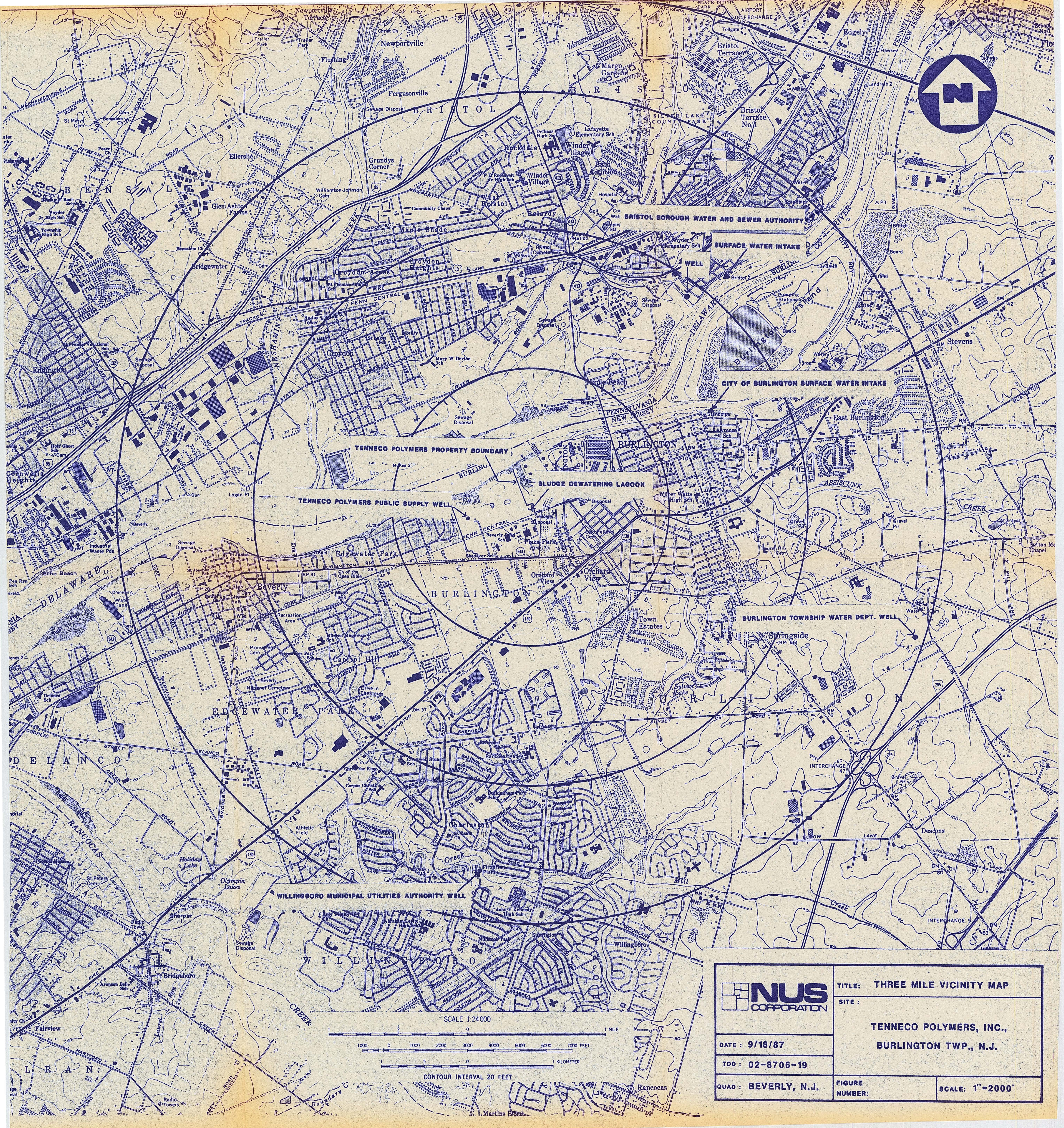
Cyanide NR

Percent Solids (%) 100

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: No reject [illegible] due to prep blank [illegible]

Lab Manager [signature]



NUS CORPORATION	TITLE: THREE MILE VICINITY MAP
	SITE: TENNECO POLYMERS, INC., BURLINGTON TWP., N.J.
DATE: 9/18/87	
TDD: 02-8706-19	
QUAD: BEVERLY, N.J.	FIGURE NUMBER: SCALE: 1"=2000'